THE IRON AGE

Contents

JULY 22, 1937

Immediate Steel

There is hardly a product in the steel and allied lines that you cannot secure quickly and economically from the nearest Ryerson plant. Stocks that include more than 10,000 sizes and kinds of steel and allied products . . modern handling and cutting facilities . . and special dispatching methods, assure accuracy, dependability and speed. When you need steel, call on Ryerson. Ten plants stand ready to meet your requirements.

JOSEPH T. RYERSON & SON, INC., Chicago, Milwaukee, St. Louis, Cincinnati, Detroit, Cleveland, Buffalo, Boston, Philadelphia, Jersey City.

RYERSON STEEL—SERVICE

▲ ▲ ▲ THE IRON AGE ▲ ▲ ▲

JULY 22, 1937

ESTABLISHED 1855 Vol. 140, No. 4

Let The People Speak

HAVE **you** ever written letters to your Congressmen?

If you are an average man or woman who is kept busy working for a living, the chances are that you have not. You probably have felt very keenly about some of the things our lawmakers are doing. Probably you have said: "I should write my Congressmen about this." But you didn't. You probably thought that your representatives in Washington were getting plenty of letters anyway.

They are. They are getting thousands of letters in the most elaborate campaign of propaganda ever organized to influence and intimidate the elected representatives of our people. Letters which demand that they vote for the "Bill to Pack the Supreme Court a Little at a Time."

From whom are these letters coming?

Tens of thousands of them are coming from the men and women who have been inveigled into paying labor Dictator Lewis and his associates a dollar per month each for doing for them their political and economic thinking. Mass organized propaganda from mass organized labor. Still more thousands are coming from post office employees who value their jobs and who know what will please Patronage Plutocrat Postmaster Farley.

Still more thousands are coming from the WPA workers and those on relief who know where Paymaster Hopkins stands on this subject and who may regard a three-cent stamp as a good investment in Government job insurance.

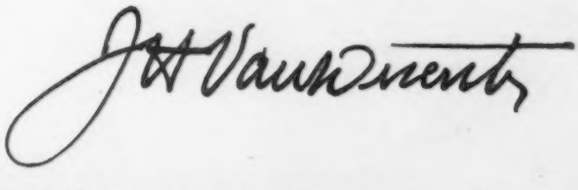
Still more thousands are coming from the sinister traditional enemies of the American form of government; men and women who detest our Constitution and our Supreme Court because these are the last barriers to Communism or Fascism.

What letters have done, letters can do. The original "Bill to Pack the Supreme Court All At Once" was defeated by letters to Congressmen. Millions of them from outraged Americans in all parts of our country, from all walks of life and from both political parties. Spontaneous letters these, not the result of organized propaganda.

Since then, there has been time for the political propaganda machine to get busy. To pile up what may appear to be evidence of popular demand for the substitute bill. But this bill is far worse than the original. The first bill was an open attempt to demolish the Supreme Court and Constitution by frontal attack. At least open enough for people to see through it. The present bill is an insidious effort to stab the Court and Constitution in the back.

If our Supreme Court and Constitution are to be done to death, let it be a quick death and not a lingering one. That would be more merciful both to them and to us.

But they will not be done to death if you will do your duty now. The same outpouring of real public opinion which defeated the original bill can defeat this insidious substitute. Let the people speak. Let us give to our lawmakers a real mandate without ambiguity. Write **your** letter today!



Additional copies of this editorial for mailing will be furnished free of charge.

Bridging the Gap Between School a

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By FREDERICK A. VAN FLEET

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A post-depression paradox is the fact that we have in the United States an unemployment problem that does not seem to be getting much nearer a solution, judging from the size of the relief demands, and at the same time a shortage of experienced industrial labor.

In the absence of reliable statistics the unemployment side of the paradox is rather fuzzy. It is clear that there are still great numbers of unemployed, although the total depends a lot on the source of the figures. It also depends on whether we include only those who are actually unemployed or in addition those who just look that way, although they are on some sort of a government payroll. To go further and try to separate those who are unemployed and looking for jobs from those who are unemployed and intend to stay that way as long as there is a Santa Claus would be a hopeless task until relief methods are changed.

There is no uncertainty about the shortage of experienced industrial labor. Every industrial employment manager knows all about that and anybody who will take the trouble to scan the help wanted columns of the city newspapers can get a fair idea.

In the meantime there are among the unemployed thousands of boys and young men who have graduated from high schools and from colleges in the last half dozen years and have been unable to get steady employment of any kind. Large numbers of them expected to become mechanics, but they have been unable to get started because they lack shop experience. They cannot get jobs without experience and they cannot get experience without jobs. It is a bad situation, because industry needs these young men and they need the steadying influence of a regular

ol and Industry . . .

place in the world as badly as they need the earnings from a regular job.

In recent months, industrial concerns have been hastily revising employee training methods with the idea of taking in some of these young men and giving them a start toward regular jobs. It is a praiseworthy activity and important for more reasons than merely helping to relieve the present skilled labor shortage.

In view of these efforts and their effect on the present labor situation a little publicized activity of the Ford Motor Co. at Dearborn is interesting and has a great deal of significance.

The Ford Training School

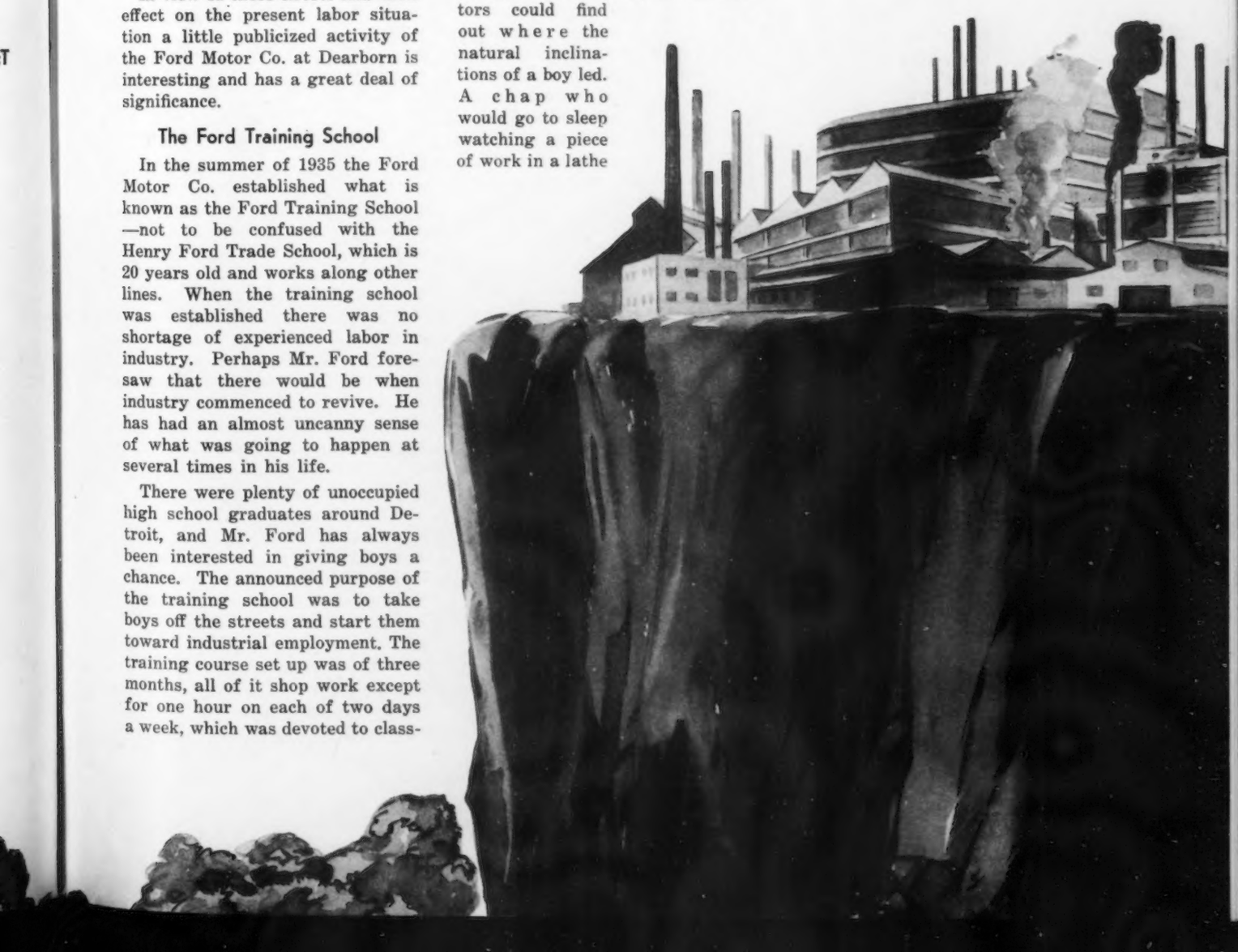
In the summer of 1935 the Ford Motor Co. established what is known as the Ford Training School —not to be confused with the Henry Ford Trade School, which is 20 years old and works along other lines. When the training school was established there was no shortage of experienced labor in industry. Perhaps Mr. Ford foresaw that there would be when industry commenced to revive. He has had an almost uncanny sense of what was going to happen at several times in his life.

There were plenty of unoccupied high school graduates around Detroit, and Mr. Ford has always been interested in giving boys a chance. The announced purpose of the training school was to take boys off the streets and start them toward industrial employment. The training course set up was of three months, all of it shop work except for one hour on each of two days a week, which was devoted to classroom work in the Ford Apprentice School, another educational activity designed to serve employees of the company.

It is apparent that no three months course of training, no matter how skillful the instructors or how good the equipment, would make a skilled mechanic out of a high school boy. There was no such hope. But three months is long enough for sympathetic instructors to analyze a boy; to find out whether he really wanted to spend his life at creative labor in a shop, whether he was honest, intelligent and adaptable, whether he had ambition to get ahead or was willing to drift. Also the instructors could find out where the natural inclinations of a boy led. A chap who would go to sleep watching a piece of work in a lathe might be fascinated by the welding process. Another might take to the milling machine or shaper and still another be right at home at the bench, working largely with hand tools.

The school is called a training school. What it actually does is to function as a sorting bin for human material, to determine which boys belong in industrial production and in what sort of work each has the most chance to succeed.

There are some things a boy can learn in three months if he is ever going to learn them. The training school has all the different kinds of machines found in any well equipped tool room. A boy works on each kind of machine tool for a time and he gets a good idea of the different kinds of machining operations and of the different materials and their characteristics. He learns safety rules and shop procedure and gets something of



the underlying philosophy of modern mass production.

School Now Has 215 Boys

The Ford Training School started with 25 boys and six instructors. It has expanded until now it has 215 boys at a time and uses 30 instructors. It is open only to graduates of high schools in the Detroit area. There are two reasons for this limitation. One is that the high school graduate is usually about 18 years of age, the minimum age for boys to work without special papers under the Michigan labor law. It is assumed that those who do not go on to college are through with their education, although some boys have entered the training school and gone on to jobs in the factory to earn money for college later. The Detroit area limitation is set because even the Ford factory could not begin to train all the boys there are in that area, much less those from other regions.

Selection of students is by no means indiscriminate. School records of every applicant are studied and there is some investigation of family conditions. Although there are no set rules, a boy from a fatherless home which needs his earnings is given preference when other things are equal. No restrictions of race, color or creed are imposed.

Boys accepted for the school are paid 55c. an hour or $22 a 40-hr. week. When they finish their training course, they are placed in the factory at the beginners' rate of 75c. an hr. After that they go ahead or not, depending on their own qualifications and ambition.

An interesting feature of this training work is that there is definite plan that it shall pay its own cost. Everything that is done for training purposes is work for use in the factory. Most of the machine work is on parts of tools and dies, done on order of the general tool department. Maintenance repair work is also done and there are two motor mechanics departments in which motor overhauling and reconditioning is done. One of these departments works on Fordson tractors formerly manufactured by the Ford company. Many of these are still in use and need servicing and overhauling from time to time. The other motor mechanics department works on standard Ford cars used around the plant.

On the work done for the tool department the records show that the rate of material spoilage is no higher than in departments manned by skilled mechanics. More time is taken with any given operation, of course, but the hourly rate is not that of skilled mechanics and the training school is declared to be self supporting.

If it has done nothing else, the Ford Training School has furnished an answer to the charge made rather frequently in recent years that the young men of the present day do not want to work with their hands as their fathers did but are all looking for white collar jobs. That contention is completely refuted by the long waiting list of boys who want to get into the training school and by the records of those who do get in. The record of the students is particularly illuminating.

Only 1½ Per Cent Fail

From the establishment of the school in June of 1935 to March 1 of the present year there had been a total of 1267 students enrolled. That total includes the current enrollment of 215 boys still in the school. Of the remainder, 914 had completed their training and had been placed in jobs in the factory, 40 had left for entirely satisfactory reasons and but 18 had flunked. Of the 40 who left, 20 went to college, 16 got other jobs, two moved from the state, one went on a farm and one went into business. Of those who flunked, 10 went A.W.O.L.—just failed to show up and were not heard of again—and eight told instructors they didn't like the work and were not going on. The fact that out of a total of 1267 students less than 1½ per cent could be considered to have failed is both a favorable reflection of the earnestness of the young men and rather conclusive evidence that the training effort is accomplishing all that could be expected of it.

It is true that this Ford employee training, or sorting, effort is on a larger scale than most plants could handle. The school occupies 28,000 sq. ft. of floor space and utilizes more than 100 machine tools of the most efficient types, besides heat-treating furnaces, welding equipment and facilities for hand and bench work. Possibly not many plants could afford to set aside that much space and devote that much equipment to employee training. Nor could many plants absorb 1000 or more new employees of but rudimentary training every year, either.

The principles of the Ford activity, however, could be used by any plant with a few hundred employees. A smaller training school might

have but one of each kind of machine tool and it might take in only such a group of students at one time as one or two instructors could handle. But the basic idea of segregating training from manufacturing, of selecting supervisors who are good instructors, and of routing through the training school such actual work of the factory as lends itself to the accomplishment of the results sought is as applicable to a shop of a few hundred employees as it is to Ford, reaching up again toward the 100,000 mark.

A Social and Economic Problem

Today there is great need for methods of quickly breaking in men who can fill the gaps in the skilled labor ranks. Tomorrow that pressing need may no longer exist. If nothing more than the present derangement of labor supply were involved there might not be much to get excited over. There is a great deal more involved, however. It is a social and economic problem, not merely an industrial situation.

We see a lot of alarming statistics these days about the extreme average youth of those involved in crime, particularly in crimes of violence. We hear a lot of inflammatory talk from boys and girls hardly old enough to know their own minds about what is wrong with our political and economic system.

Does that mean that there is a generation of young folks coming along which is going to put an end to all our beloved beliefs and institutions in favor of mob rule or some trick ism? Not at all! It simply means that there is a generation of young folks which has been dropped into a void between school and a job and is pretty bitter about it. Hunger and idleness often breed bitterness. This crisis will pass, barring world calamity. But somebody must start bridging that void, because we couldn't stand another lost generation before the present one gets prosperous enough to be conservative.

The fact is that there is too little connection between the education we give our young folks and the business of making a living. It is true that there are some trade and technical schools, both public and private, but the cases where they are tied in with industry to such an extent that graduation assures a student a reasonable certainty of being tried out on a job are few and far between.

Urgent Need of New System

Industry has had a sort of an apprentice system of its own, entirely apart from any outside educational effort. As industry has grown up it has, most of the time, been able to take on young men to fill gaps or supply expanding needs in sufficient numbers to absorb most of the applicants. Apprentice schools and regular systems of employee training have been growing, too.

But when the late and unlamented depression began to make itself felt, things began to get tough for the young fellows ready for a start. As production lessened, older men and heads of families were naturally given preference. Vacancies from death, promotion, disability or other causes were hailed by employers as a relief because that left so much more work to be divided among the remaining older employees. Apprentice schools were curtailed and beginners turned away from the employment offices. So we had a lost generation, and because that generation could not get experience, we now have a shortage of experience.

The Problem Up to Industry

The conclusion which must be reached is that there is urgent need for some such mechanism as that of Ford for sorting and grading boys and guiding them into places where they can be of most use, not only to themselves and to society as a whole, but to industry itself. It is a problem that demands the attention of industry or education, or more likely of industry and education, in cooperation.

Durtemp, a new baking lacquer developed by Maas & Waldstein Co., maker of industrial finishes, Newark, N. J., is said to withstand the action of match flames, lighted cigars and cigarettes, and perfumes, alcohol, and household chemicals. It is a gold colored clear lacquer, which is applied to metals by dipping or spraying and then baked.

THE FITTERER PYROMETER

THE last year has seen remarkable progress in the commercial application of the C-SiC thermocouple[1-2] to the measurement of liquid steel temperatures. Since the merchandising of this device was taken over by the Fitterer Pyrometer Co., about a year ago, numerous installations have been made, all of which are successfully operating daily in conjunction with production departments.

The most recent development in the C-SiC couple is the portable unit, which is inserted through the wicket hole of the open-hearth or other furnace door, and immersed in the steel to a depth of 6 to 8 in. at a point 2½ ft. from the front wall. This type, which is illustrated in Figs. 1 and 2, can be made up to 8 ft. in length at the present time. It is telescopic in nature and the total length of an 8-ft. couple when extended is about 15 ft.

In operating this device, the tip of the couple (or hot junction) is preheated by placing it just above the slag surface where it is held until the potentiometer records a temperature of about 2800 deg. F. This requires less than 3 min. At this time the tip is immersed through the slag and into the metal. A period of about 1 min. is required for the couple to reach a condition of thermal equilibrium with the metal, at which time the indicated temperature remains constant. Some readings have been made within 20 sec. after immersion.

The total operation requires about 4 min., after which the couple is removed from the furnace, its leg folded up, and the entire equipment, weighing some 50 lb., carried away. This factor of portability is highly desirable since the instrument may be removed in case it interferes with other operations; also, one instrument will serve several furnaces.

Many readings may be made on a given heat for the purpose of studying reactions and assembling data for use as a basis for open-hearth control. Some of the technical data of this nature which have already been obtained will be presented as a technological paper in the near future.

Some of the C-SiC ladle thermocouples have been in continuous operation in acid open-hearth and basic electric shops for more than a year. Temperatures obtained from such installations have already answered many practical steel plant problems, such as determining the effects of alloy additions and slow tapping on the temperature of the steel in the ladle. Other information that has been obtained includes the effect of temperature on the quality of certain types of steel with regard to surface defects, segregation, etc. The effect of pouring rates at different temperatures has also been studied.

Many operators feel that there is little that can be done with regard to temperature after the steel is in the ladle. Aside from some regulation of holding time in the

[1] "A New Thermocouple for Measuring Temperatures up to 1800 Deg. C.," G. R. Fitterer, A.I.M.E., Iron and Steel Division, Vol. 105, 1933, p. 290.

[2] "Some Metallurgical Applications of the C-SiC Thermocouple." G. R. Fitterer, A.I.M.E., Open-Hearth Proceedings, 1936, p. 134.

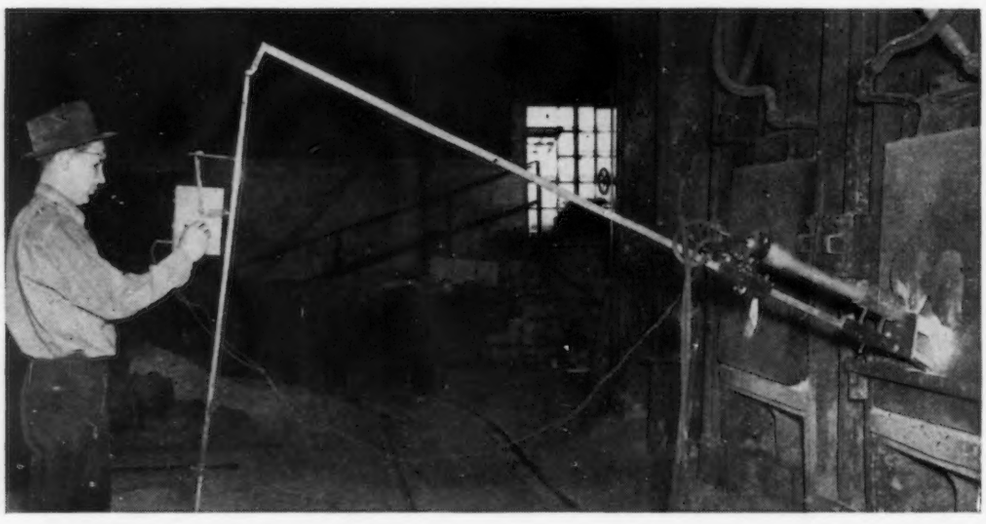


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FIG. 1—Portable model of a C-SiC thermocouple inserted through the door of an open-hearth furnace. Photo by Swank.

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—For Measuring Liquid Steel Temperatures

ladle, this is true. Ladle thermocouples, however, are of considerable aid in many respects. The operator may have worked for a given temperature in the furnace, and then because of a slow tap the metal in the ladle will be 50 to 100 deg. lower than the same type of steel tapped at the same temperature but with a good tapping stream. Other factors, such as the condition of the ladle design, holding time, etc., play a big part in connecting the tapping temperature in the furnace to the quality of the finished product.

A ladle type of the C-SiC thermocouple is shown in Fig. 3. This device has been swung out over the ladle in an acid open-hearth plant and run down through 10 to 12 in. of slag and into 6 to 8 in. of metal. Thermocouples of this type are mounted at a convenient position on the furnace platform so that they can be used in ladles from the maximum number of furnaces.

Another interesting feature of this type of couple is that simultaneously with the determination of ladle temperature, the freezing point of the steel can also be determined. The couple is preheated to about 2100 deg. F. prior to immersion. Because this temperature is below the melting point of steel, some 25 lb. of metal freezes on the tip of the couple. Then, if 10-sec. readings are taken as the surrounding metal heats the frozen material to the temperature of the surrounding liquid, it is noticed that at a given time the temperature increase per 10-sec. interval suddenly rises from 40 to 100 deg. It is at this point that the metal has become semi-liquid and dropped off the end of the couple, thus allowing the heat from the surrounding liquid to reach the tip. The temperature at this "halt-point" is taken as the apparent freezing point.

A period of not more than 3½ min. is required for this type of couple to reach thermal equilibrium. The time at which the melting point of the steel is reached is within about 2 min. after immersion.

Hence it is believed that the important use of this type of couple will not be just to determine ladle temperature, but to find the "temperature head," or difference between the ladle or teeming temperature and the freezing point of the steel. After all, this is the important thing to know in the casting of ingots and forms. How many degrees above the solidification point should a given steel be cast? Some steels should be cast from 200 to 300 deg. above the freezing point, whereas others give a better finished product when cast as close to the freezing point as possible. Information of this type is now becoming available.

All thermocouples of this type are now furnished with replaceable graphite tips or immersing ends. This is the part that wears out in service and may be replaced in a few minutes. The insertion of a new tip does not require a new calibration chart. The life of the replaceable tip varies with the steels in which it is immersed, so that it is rather difficult to give an average length of service.

A wash or coating material has

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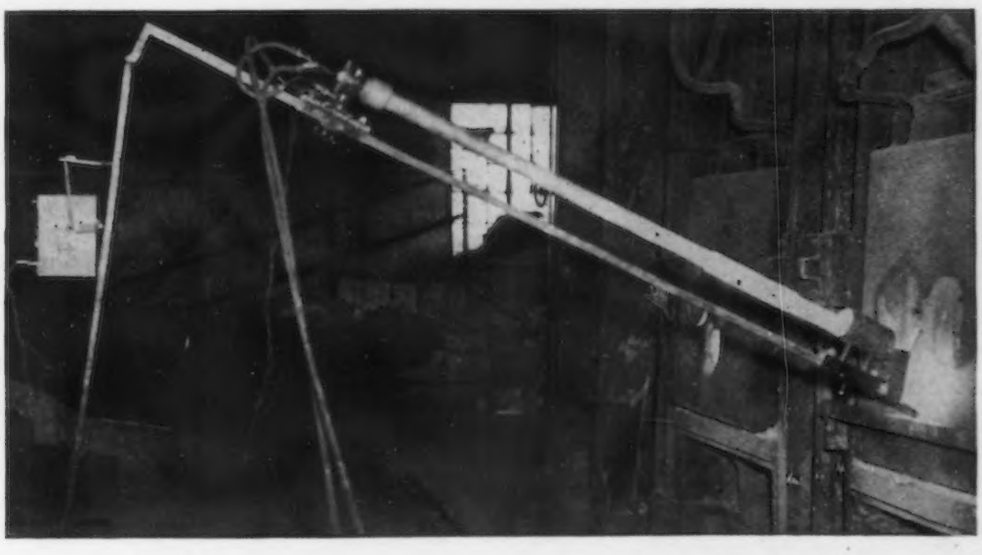

FIG. 2—Complete couple immediately after removal from an open-hearth furnace. Photo by Swank.

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been developed for protecting the external elements (particularly the tip) against attack from furnace gases, slags, and steels. This material is responsible for lengthening the life of the immersion end of the couple. With a little instruction, any mill laborer can quickly learn to apply this coating material properly and thus greatly increase the life of the replaceable tip.

Extreme limits of life in acid open-hearth practice may vary from 40 heats to 162 heats, with an average close to 58 heats for ladle applications where the carbon content of the steel is from 0.25 to 0.75 per cent, or an average of about 0.45 per cent.

In ladles of basic electric steel, the life of the tip is from 10 to 25 immersions with the average close to 15. The coating material to be used on the tips in this service is gradually being improved, and an increase in the number of immersions per tip may be expected in the near future.

As all other elements of the couple will last indefinitely, provided ordinary care is exercised, the cost of operating this device is low.

A very unique potentiometer, which is shown in Fig. 4, has been developed for use with the thermocouple. The potentiometer system is similar to others, except that by means of a system of gears, a counting device works in conjunction with the slide wire and indicates temperatures directly in degrees. Hence, when the thermocouple is in operation and the potentiometer system has been balanced by means of a knob at the side of the device, the indicator at the top of the instrument is already reading the proper temperature. No millivolt temperature conversion chart is required, and this device is greatly appreciated by the mill men. After the standard cell has been balanced, the potentiometer may be operated by anyone.

As has been stated in the original technical paper[1], this thermocouple is a true thermo-electric device, which has the following properties:

(1) A linear variation of millivolts to temperature.

(2) Reproductability, i.e., different couples have similar calibration lines.

(3) Useful from very low to very high temperatures, up to 3600 deg. F. In the original technical paper 3270 deg. F. was the maximum temperature claimed.

(4) The largest thermo-electric power of any commercial thermocouple to date; it develops thirty times the millivolts of the Pt-PtR couple at any temperature.

(5) Chemical stability; gases such as CO and CO_2, have no effect on its calibration.

Furthermore, this device has the very remarkable property of high resistance to thermal shock. It may be immersed cold in liquid metal at 3000 deg. F. without breaking. Also, the depth of immersion is not an important factor, for any immersion from 2 to 10 in. will record identical temperatures.

Standard furnace and ladle thermocouples are now available for the following applications:

(1) Blast furnace (in runners).
(2) Cast iron applications of all kinds.

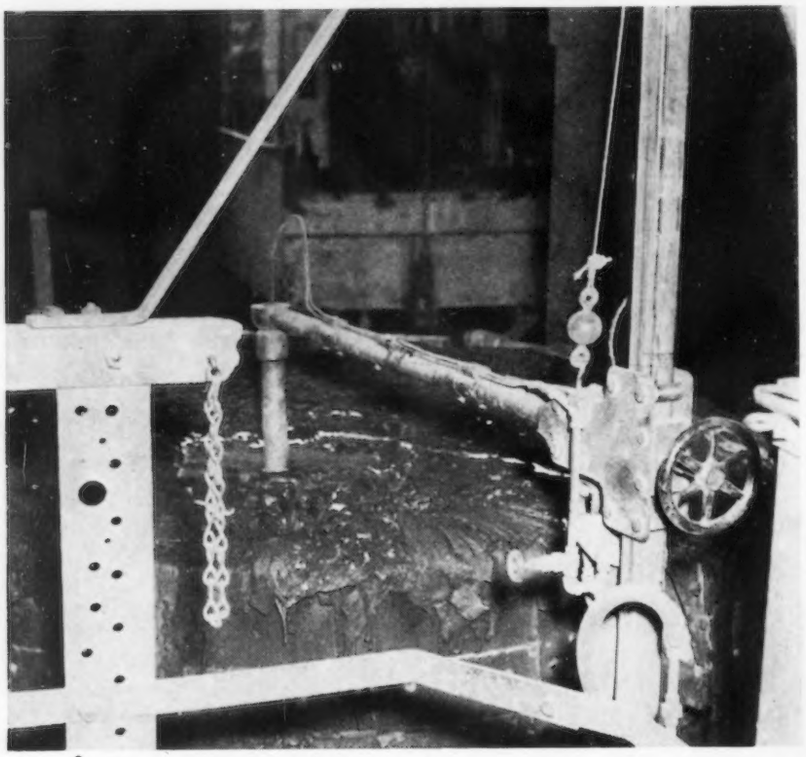

FIG. 3—Ladle type of C-SiC thermocouple. This couple, as used on this 40-ton ladle, is inserted to a depth of 20 in. below the surface of the slag. Photo by Swank.

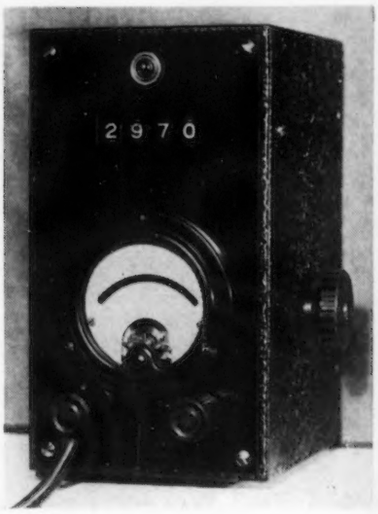

FIG. 4—This potentiometer is so devised as to give direct-reading temperature figures.

(3) High frequency induction furnaces.
(4) Acid and basic electric furnaces.
(5) Acid and basic open-hearth furnaces.
(6) Non-ferrous metals of all types.

Some special applications require special designs but sufficient experience has been had that practically all liquid metal applications are now completely feasible.

A Continuous Heat Treating Furnace in a Steel Foundry

JOHN HOWE HALL

herein describes a novel semi-continuous car hearth furnace for annealing manganese steel castings. As compared with usual batch annealing practice, the author stresses fuel economy, greater speed, less scale loss and less surface decarburization.

By JOHN HOWE HALL
Taylor-Wharton Iron & Steel Co.

SOME years ago, in connection with studies of the efficiency of heating in batch type annealing furnaces, the author made the suggestion that small and medium sized manganese steel castings should be heat treated in a furnace of the continuous type. The points in favor of this scheme were as follow:

Manganese steel castings are heat treated by quenching from somewhat over 1900 deg. F., with no second heating or drawing treatment. Therefore a single furnace, hot at one end and cold at the other, should lend itself admirably to the purpose.

Manganese steel castings before heat treating are brittle and therefore have to be heated quite slowly up to at least a red heat. For this reason batch type furnaces always have to be cooled off after each charge, otherwise there would be excessive cracking of castings. The heat loss entailed in cooling a batch furnace is entirely eliminated in a continuous unit.

To handle the necessary tonnage economically, batch type furnaces for manganese steel must be rather large. It is difficult to bring heavy charges of small castings up to heat, throughout their mass, without heating the castings on the outside of the charge too fast, and holding them at the maximum temperature too long. Consequently, batch type furnaces are usually heated very slowly. The continuous furnace would handle smaller and lighter batches of castings in each lot, so that the total time of heating each batch could be considerably reduced.

As each zone of the continuous furnace is maintained for long periods at steady temperature, instead of being repeatedly heated and cooled, repairs to brick-work in a continuous furnace should be much less than for the batch unit. When suggested several years ago, the chief objections to the scheme were its novelty, and the difficulty of overcoming some of the mechanical troubles in connection with moving successive charges through a long furnace. About a year ago, as one of the important steps in a rehabilitation and modernization program in the heat treating department, it was decided to build a continuous furnace, as designed by the R-S Products Corp. of Philadelphia.

The specifications for the furnace called for a capacity of heating 10,000 lb. per hr. to a temperature of 1950 deg. F., the batches to be not over 6 ft. wide, 5 ft. long and 2 ft. high. Comparatively shallow lots were adopted in order to allow more uniform and therefore faster heating of each batch. Because of the cost and short life of metallic trays, and the heat lost in removing them from the furnace, it was decided to charge the castings directly upon cars. The cars are moved through the furnace in steps, one car being pushed in at the cold end each time one is withdrawn and its contents dumped into the quenching tank. The fuel is light fuel oil. The heating cycles are carried out by dividing the furnace into five zones; zones one, two, and three hold one car each, zone four two cars, and the hottest, zone five, one car again. Thus the furnace holds six cars and is 30 ft. long inside the doors. Its over-all dimensions over buck-stays are 33 ft. 5 in. x 13 ft. 9½ in.

The furnace structure is made up of a steel plate casing with a hydraulically operated door at each end. The heating zones are separated by an arch wall with just sufficient clearance to allow for the passage of the work. The venting of each zone is separate, and under the control of a Ryan pressure control system, an automatic function

tied in with the temperature control valve system that continuously maintains a set pressure and is responsible largely for the reduction of scaling through the elimination of free air infiltration. A novel feature of the equipment is an entirely new development in relation to the sealing of the cars as they butt against each other completely eliminating heat passage to the underwell of the car.

Each zone is fired by two Ryan low pressure oil burners, except zone four, which has four. The

ler recorders with a range of from zero to 2400 deg. F., and chromel-alumel couples.

The recording controllers are tied in with the Ryan valve system of automatic temperature control; therefore the temperature, firing, and pressure control are under the control of the furnace operator and furnish a means of varying and maintaining the temperature and atmosphere desired.

The operation of the furnace is through hydraulic equipment under the control of a single operator. A

outside tracks on the side of the furnace to the rear transfer car which places it in front of the charging end, at which point it is ready to repeat the cycle of operation.

In practice, it has been found most satisfactory to hold zone four somewhat below the final temperature desired, and zone five at 1940 deg. F. With this adjustment of temperature, the castings are brought to full heat in regular stages and require the minimum time of holding in the hottest zone. When so operated, it is generally

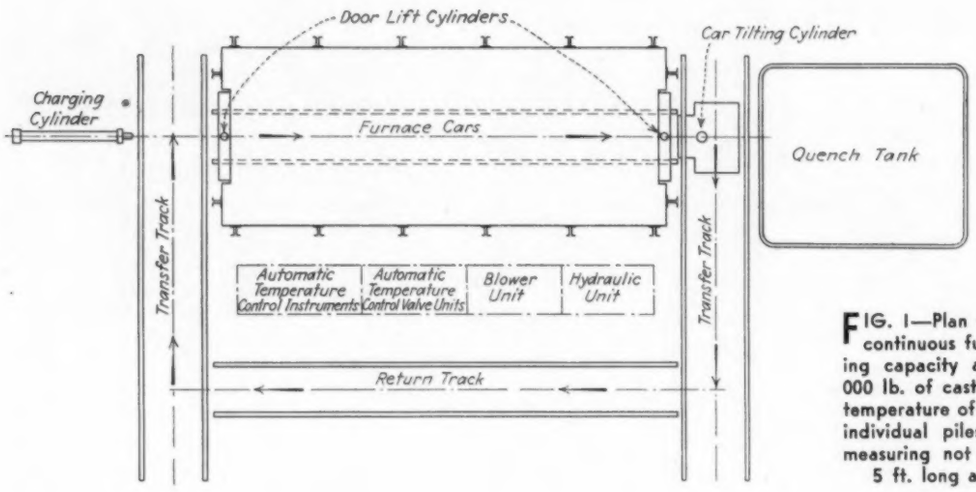

FIG. 1—Plan view of the semi-continuous furnace. The heating capacity approximates 10,000 lb. of castings per hr. to a temperature of 1950 deg. F., the individual piles of castings measuring not over 6 ft. wide, 5 ft. long and 2 ft. high.

original scheme called for temperatures of 300 deg. F. in zone one, 600 deg. in zone two, 940 deg. in zone three, and 1940 deg. in zones four and five. It was believed that these temperature steps would make it possible to bring the castings to full heat in the desired time, without risk of cracking them by too rapid heating. In order to adapt the furnace to handle castings of widely varying sections and weights, the possible range of temperature in each zone was made quite wide. Thus zone one may be brought to any temperature up to 1000 deg. F. A Leeds & Northrup round chart controller regulator with range from zero to 1000 deg. is provided for this zone. Zones two and three are governed by Leeds & Northrup round chart controller regulators with a range of from 800 deg. to 1800 deg. F. In the first three zones, iron-constantan couples are used. Zones four and five are provided with Leeds & Northrup continuous chart control-

brief description of the cycle of operation is as follows:

With all of the furnace cars in place, there is an additional loaded car placed at the charging end. When the time for discharge takes place, through valve control, the car at the charge end is moved into the furnace, in turn moving the first car at the discharge end out of the furnace. Mechanical means are provided to move this discharge car the extra length of travel to carry it beyond the furnace line.

The car automatically engages itself with the coupling head of the discharge cylinder, which immediately raises one end of the car to a point where the heated material slides into the quench bath. The time elapsing between the opening and closing of the furnace doors and the discharge into the quench tank is 40 sec. The car then returns to its normal position and passes away from the front of the furnace to the loading platform. It is immediately loaded and passes by the

found possible to shut off the burners in zone one, and sometimes in zone two, entirely, as these zones are brought to the desired temperature by the heat from the rest of the furnace.

The zone design of this furnace makes possible the accurate treatment of the last car to be loaded without need of a charge being loaded on the follow cars, and in reverse the cycle of operation begins to take place immediately on the charging of a loaded car. No interruption takes place with the change of annealing cycle of a different product; there is simply the adjustment of the temperature controls.

Work can be moved from the casting floor more rapidly than with the single batch type furnace and segregation of castings of like character in the same cross section becomes a possibility with the accompanying advantages in treatment. The furnace presents no higher features of maintenance

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FIG. 2—A car piled high with castings moves into the first zone of the annealing furnace. The cars butt against each other in such a manner as to minimize heat passage to the underwell of the car.

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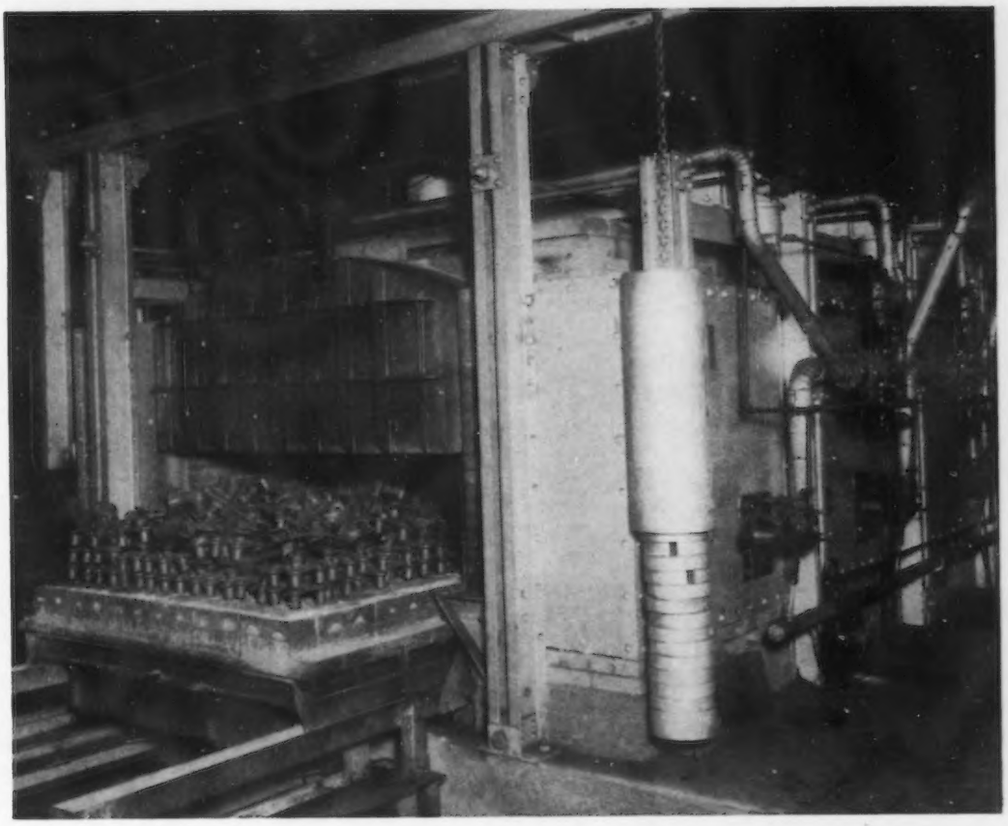

than will be found in an average car-hearth furnace.

The fuel economy secured from this furnace has been most satisfactory. On test runs aggregating 140 net tons of manganese steel castings, an oil consumption of 22.5 gal. per ton of steel was attained. The castings treated were formerly handled in batch type furnaces with an oil consumption of 35 gal. per ton or over. Thus the fuel saved amounts to 35.7 per cent.

The saving in scale losses and

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FIG. 3—A car emerges from the furnace, and a hydraulic lift tilts it in this manner, so that the castings on top slide off into a quenching tank.

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surface decarburization of the castings has been marked. At as high a temperature as 1940 deg. F., scaling is rapid and is accompanied by a degree of surface decarburization that is quite serious. This is especially true of the higher castings, and is more important in the case of manganese steel than in carbon or alloy steels; for manganese steel castings are frequently not machined on the wearing surfaces, and the decarburized zone has a greatly diminished resistance to wear. Exact figures on the loss of weight by scaling are not at hand, but it is estimated that the new furnace has saved at least 1 per cent of the weight of steel treated—a very respectable figure on a high alloy steel. At the same time, microscopic examination of castings and test bars has proved that the extent of surface decarburization has been greatly reduced. This result, of course, is due to improved combustion of the fuel and shorter total heating time.

A somewhat unexpected advantage secured has been the speeding up of the heat treatment beyond what was thought permissible when the furnace was designed. By careful selection of castings of similar section for each charge, and by setting suitable temperatures in the successive zones, it has been found that the capacity originally assigned to the furnace can be considerably exceeded.

In this connection, the wide ranges of temperatures provided in the design of the furnace have proved themselves even more advantageous than was originally expected in adapting it to a wide variety of materials. Thus at times the furnace has been completely filled with certain alloy iron castings requiring a long anneal at 800 deg. F., followed by slow cooling. By taking advantage of week-end periods, large batches of these castings have been handled, which formerly had to be treated in a number of successive batches in smaller furnaces. Zones two, three, four and five have been utilized to heat carbon and low alloy steel castings to 1650 deg. F., followed sometimes by slow cooling in the furnace, sometimes by air cooling. In the latter case, draw temperatures up to 1250 deg. F. have been applied to the castings, and it has been possible to use some zones for draw temperatures and some for the higher temperatures simultaneously. In fact, on a few occasions castings have been heated simultaneously to three different temperatures in successive zones. Thus with this one furnace it has been possible to handle a wide range of products formerly taken care of in batch type furnaces of much less efficient design.

Acme Makes Colored Stapling Wire

STAPLING wire of almost every color is now being made to order by Acme Steel Co., Chicago. The new product called "Colorstitch" affords an easy and economical means of "dressing-up" corrugated or fibre board shipping cartons.

Colorstitch is available in colors that will blend or contrast with plain or printed cartons. It is made in all standard stapling wire sizes. It is said to have the same rust-resisting qualities as Silverstitch, Acme's galvanized stapling wire. Colorstitch is made in lots of 500 lb. and more.

The largest coke oven plant ever constructed in the United Kingdom has just been completed at the Cleveland iron works of Dorman Long & Co. The plant has cost about £650,000 ($3,250,000) and embodies the latest experience, invention and practice of practically the entire world.

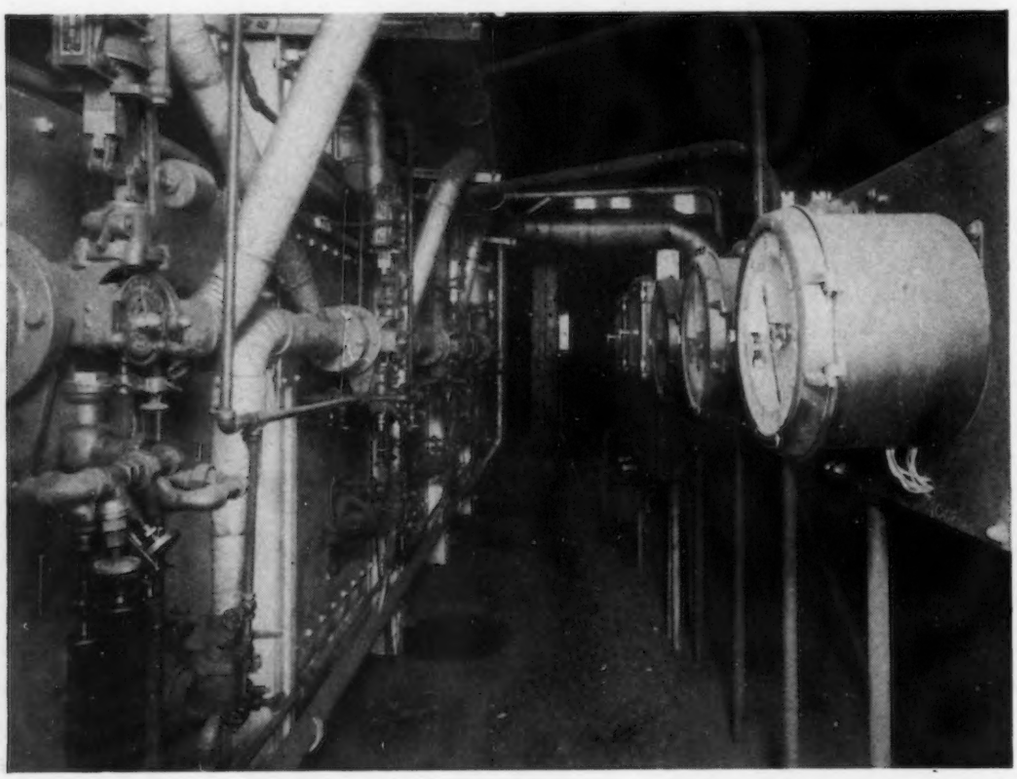

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FIG. 4—Side view of the annealing furnace, showing the burner units for each zone as well as (right) the control panel with automatic temperature control instruments and automatic valve units.

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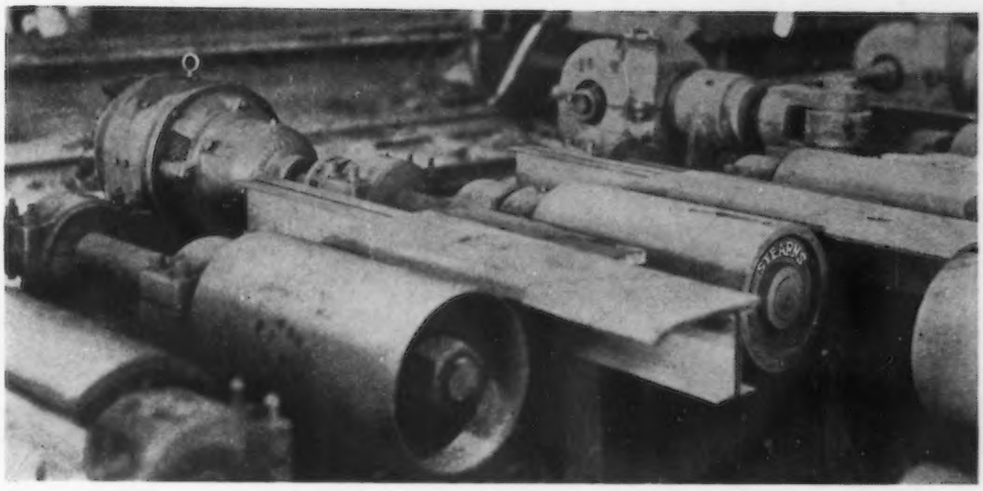

FIG. 1—Stearns magnetic skelp rolls, set at a slight angle, keep the sheets tight against side rollers and thus make them move onwards in a straight line.

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Conveying Systems for Severe Duty Service

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By FRANCIS JURASCHEK
Consulting Editor, The Iron Age

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CHAPTER 13 in a comprehensive series on Materials Handling Methods and Equipment.

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AT the risk of repeating statements already made in this series of discussions, it is worth while to re-emphasize certain basic factors of the problem involved in the design of any materials handling system:

1—A complete solution of a materials handling problem is one which either unites or relates the specific operation to all other steps in the production process, or, if the ideal of continuous flow is not immediately attainable, includes the installation of equipment that can be so integrated later.

2—The continuous flow principle demands that every movement should be a *forward* movement. In an ideal set-up there is no rehandling. This ideal may not always be attainable 100 per cent, but the principle, in so far as it may be applied, should enter into the solution of *every* materials handling problem.

The analysis of the conditions to be met in any problem should include not only a study of *what* to do, and *how* to do it effectively, but also *why* it should be done a certain way rather than in some other fashion. The economics of the situation are concerned on the one hand with moving the materials expeditiously and cheaply; and on the other hand with making that movement an intimate, correlated part of the whole production job, keying the time required and the space needed for the movement into the whole pattern of efficient manufacturing and management, while conserving at the same time the safety of the worker and the necessity of eliminating possibilities of damage to the goods handled and the plant equipment involved.

In the handling of heavy materials or parts, a job often complicated by conditions of high temperature, or chemical fumes, or dusty atmosphere, or abrasion, mechanical handling problems demand a special treatment in which the analysis of conditions of use plays a much more important part than in problems involving light duty service. The present discussions will cover certain phases of the use of conveyors in heavy duty service only, and will stress the importance of designs which meet these conditions satisfactorily. Since an adequate treatment of belt

conveyors in heavy duty service calls for extended consideration by itself, that particular phase of the subject will be held for a later article, and only roller, slat and chain conveyors covered here.

Heavy Duty Service

Packages, parts, or containers filled with materials, with unit weights of 500 pounds or over, call for conveyor construction details quite different from those designed to transfer lighter weights. Construction must be much more substantial; bearings must be of different design. Contrary to popular impression, the automotive types of anti-friction bearings do not work out well in heavy duty conveyor service—the close tolerances having a tendency to "freeze" or bind the bearings when under load. Consequently most successful heavy duty roller conveyors use a special type of ball bearing designed especially for such work, generally held in a pressed steel jacket equipped with a labyrinth seal and inner grease container.

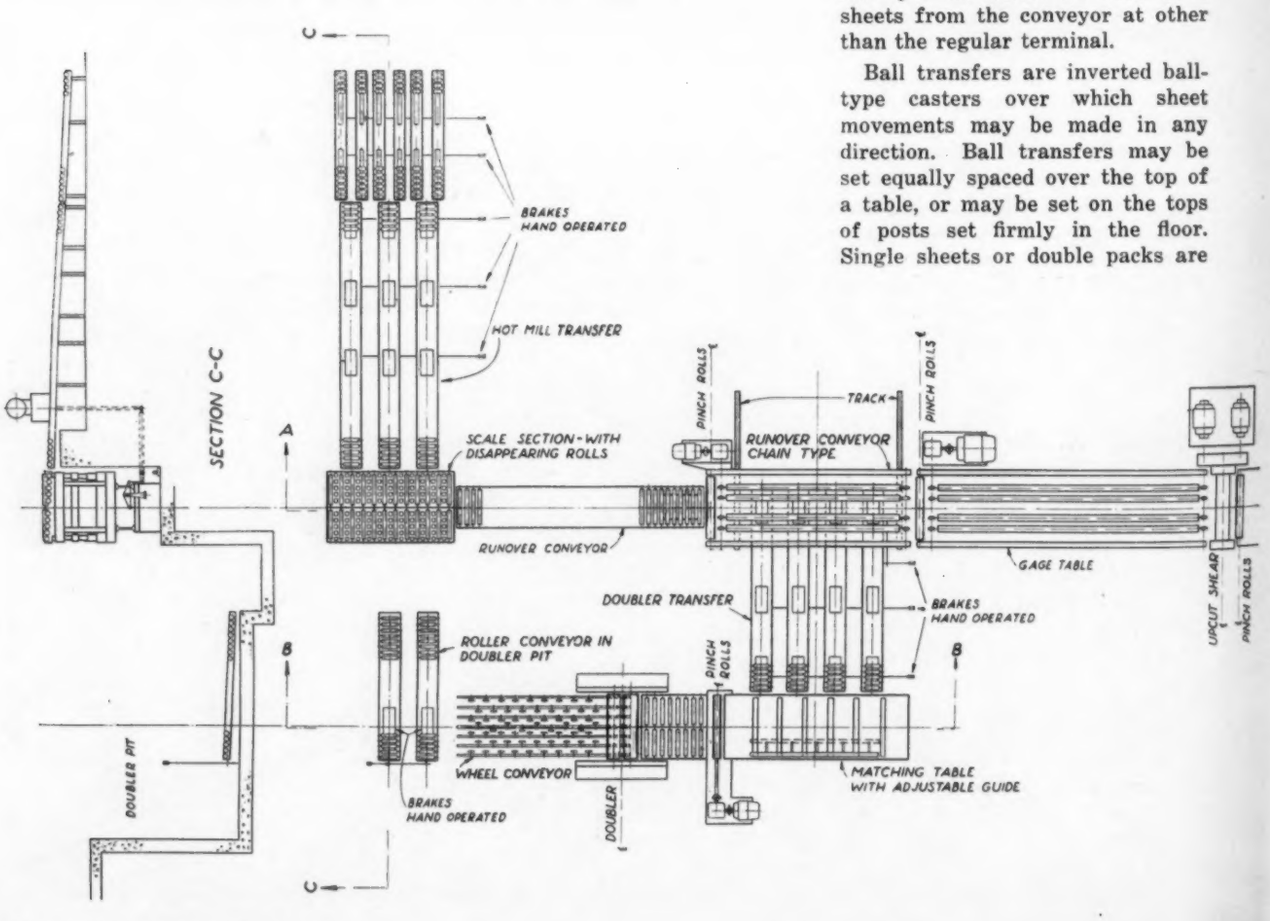
Conveyors designed for use in foundries must resist heat and abrasion, as well as stand up under the punishment of heavy loads frequently put upon them none too gently. In steel mills—particularly sheet and continuous strip mills—they must handle loads ranging in the thousands of pounds, often resist extremely high temperatures, and in the case of conveyors leading from the pickling tanks, withstand the corrosive effect of certain acids. These conditions are likewise met in lesser degree in the rolling of copper, brass and other non-ferrous metals, while in tinplate mills conveyors must not scratch the bright surface of the sheets, and in certain chemical plants, they must be proof against corrosive fumes and damp atmospheric conditions.

Whenever and wherever installed in any heavy duty service, as in all lighter duty services, conveyors should be connecting links which make production processes flow onwards uninterruptedly. It has been said of steel-making that it is not a one-operation business. A mill's efficiency is measured largely by the manner in which the various operations are tied together, or coordinated. But that statement is likewise true of any mass production business—and in nine cases out of ten, conveyors provide the means for pulling the operations into step with one another.

Detailed descriptions of conveyor installations for continuous steel strip production were given in THE IRON AGE of Feb. 20, 1936, March 26, 1936 and Nov. 26, 1936. A description of a unique gray iron foundry conveyor installation was published in the issue of April 29, 1937. These articles cover many of the essentials of such heavy duty roller conveyor service. In addition it may be well to consider certain other points here.

In sheet mills two special types of conveyor equipment are frequently found. Wheel conveyors are made up of parallel lines of heavy ball-bearing wheels with smooth treads, set in approximately the same positions as the bearings of roller conveyors. Such wheel conveyors are especially useful in converging sections where the lengths of rollers do not permit the use of regular roller conveyors, as in feeding to and receiving from furnaces, or where sheets wider than the regular rollers are to be handled. Likewise, a single line of wheels set at right angles to the line of flow along one side or both sides of a roller conveyor facilitates the removal of sheets from the conveyor at other than the regular terminal.

Ball transfers are inverted ball-type casters over which sheet movements may be made in any direction. Ball transfers may be set equally spaced over the top of a table, or may be set on the tops of posts set firmly in the floor. Single sheets or double packs are



easily transferred from a line of roller conveyor, and moved sideways or diagonally without marring or scratching the sheets.

Fig. 1 shows a unique method of handling skelp. In an open, gravity roller line one or more Stearns magnetic rollers are introduced, set at a slight angle with the other rollers. The magnetic roller thus continually forces the skelp sheets against the side rollers, straightening them in their line of travel, and thus providing continuous flow along the conveyor line.

Sheet and Coil Conveyors

Fig. 2 shows the layout of a sheet mill shearing unit in which the various conveyor units were designed, constructed and installed by Logan Co. Coils are brought by crane to the coil loading conveyor at the extreme right, which consists of a length of heavy duty gravity rolls. They are then uncoiled, and after passing through a roll leveler are cut to length by an up-cut shear, and the sheets handled on chains across a gage table. Single sheets go in piles to the scale section for weighing; sheets to be double are transferred at right angles to the doubler loop. The section marked "runover conveyor, chain type" is actually a car running on rails laid transversely to the normal direction of travel of the sheets. For single sheets this transfer car is placed in the position shown, the sheets traveling across it and through a set of pinch rolls which throws them in piles onto a line of roller conveyor leading to the scale section. Motor-operated disappearing rolls on the scale section permit the piles to move sideways by gravity onto the three parallel lines of storage roller conveyor.

When sheets are to be doubled the transfer car is moved out of line and the sheets coming from the gage table are piled directly on the four parallel lines of gravity rolls of the doubler transfer conveyor, moving thence over the matching table to the roll doubler. From the doubler pit the packs are handled by crane to the scale section of the original conveyor line for weighing, as in the procedure for single sheets, and thence go onto the storage lines. The three lines of roller conveyor of these storage conveyors terminate in six narrow lines to facilitate the passing of chains around lifts of all sizes. Lifts are removed from these lines by crane to go to regular storage, or for further processing.

Roller conveyors for coiled strip handling are of two general designs; horizontal rollers, and trough section rollers, made of two lines of rolls set at an angle with each other. Either type is used in accordance with the need to handle the coil on end or on its side. The first type is shown in Fig. 3, a Standard horizontal roller conveyor handling coils of steel strip on end, each weighing five tons or more. The second type is shown in Fig. 4, a Mathews trough section roller conveyor on

FIG. 3—Three-rail, double roll section of Standard gravity roller conveyor, with side rolls set vertically, for handling heavy coils of strip on end.

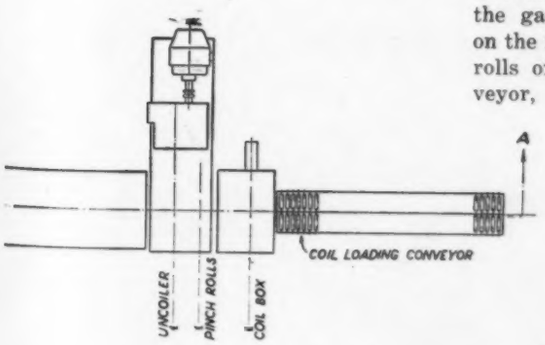


FIG. 2—Layout of shearing unit in a mid-Western sheet mill, for handling single and doubled sheets from coil to storage. Conveying equipment by Logan Co.

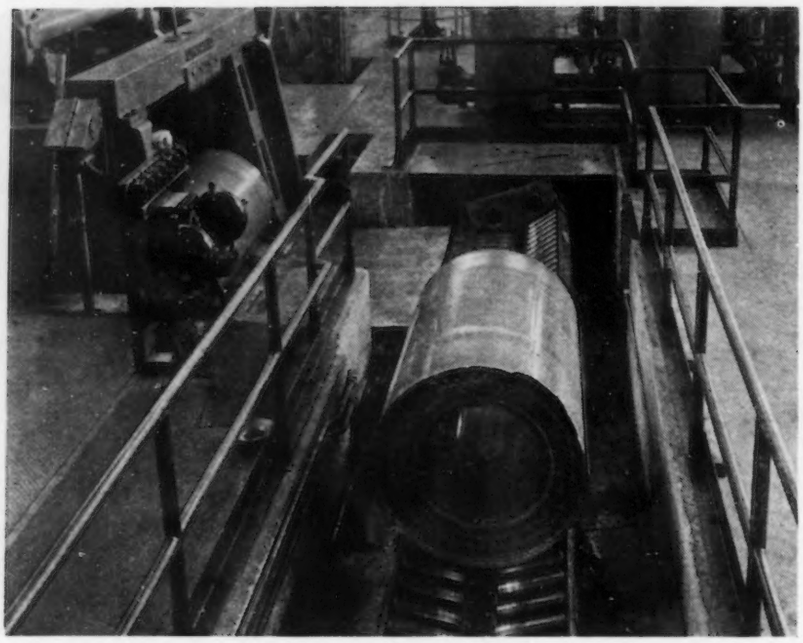


FIG. 4—Mathews trough-section gravity roller conveyor for handling heavy coils of strip on their sides. Tilting section delivers coils directly to uncoiler.

which the roll, on its side, is moving by gravity to a tilting section which will transfer it to the uncoiler shown in the left background. Handling strip or sheet metal requires the horizontal type of roller conveyor. Several sections of Mathews conveyor of this type are shown in one long line in Fig. 5, taken in a large Eastern mill.

Expanded metal lath in 2,000 lb. stacks is conveyed on several lines of powered Standard wheel-and-roller conveyors to the wide Standard apron conveyor shown in Fig. 6, which by power moves the stacks towards the opening in the wall to another room where an overhead trolley hoist picks them up in slings. The use of rollers as slats on the lateral feeding conveyors permits the stacks of lath to be held temporarily on these lines without stopping the conveyors, as the rollers simply revolve under the held stacks. The wide conveyor, moving constantly towards the wall opening, is made up of short sections of transverse ball-bearing rollers, to facilitate delivery from the lateral feeder lines; a stop placed opposite each feeder line keeping the stacks from over-running the apron conveyor as delivered to it.

In Fig. 7 is shown a Logan 180 degree differential roll curve used for reversing the direction of travel of sheets. This curve receives sheets or packs from the chain conveyor which is power driven, and delivers them over a wheel conveyor to the feeding end of the furnace for reheating. Differential (double roll) curves provide greater strength than single roll curves, permit closer roll space, and tend to keep the sheet properly centered and aligned on the curve.

On the Move

It pays to keep production on the move, for continuity of production is the essence of modern industrial economy. Waiting time is eliminated, waste motion is excluded, inventories are reduced. To make effective a flow line of opera-

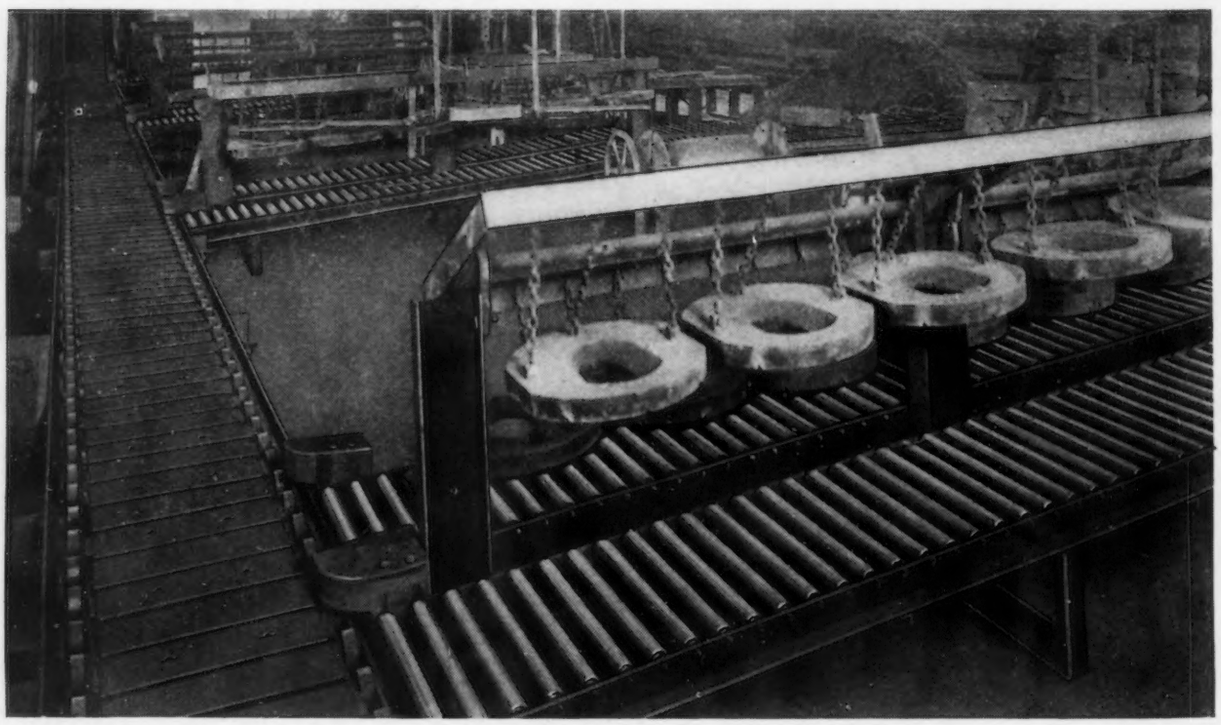


FIG. 9—A complete cycle of operations insures continuous flow in this foundry where gravity roller, apron and belt conveyors are of Logan Co. design. See text.

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FIG. 5—Long line of Mathews roller conveyor sections handling sheets in a large mill. From the coil to the final package all operations are performed "on the move."

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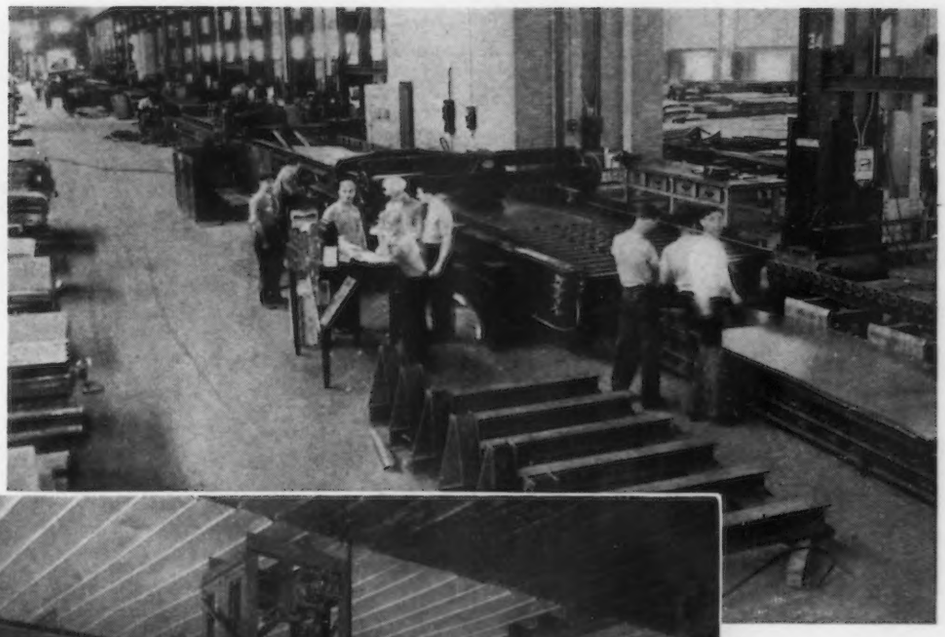

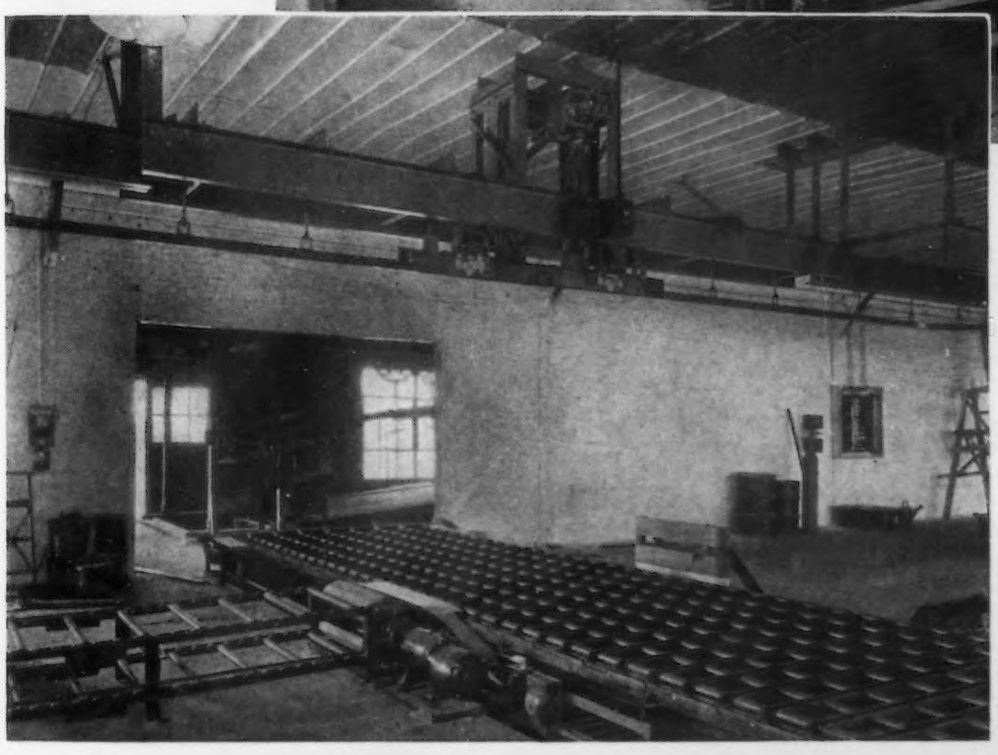

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FIG. 6—Expanded metal lath in stacks of 2000 lb. each is handled from transverse wheel and roller conveyor to the special transverse roller, apron conveyor, all of Standard Conveyor design.

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FIG. 7—Logan 180 degree differential roller curve takes sheets from chain conveyor, and delivers them over the wheel conveyor to the furnace for reheating.

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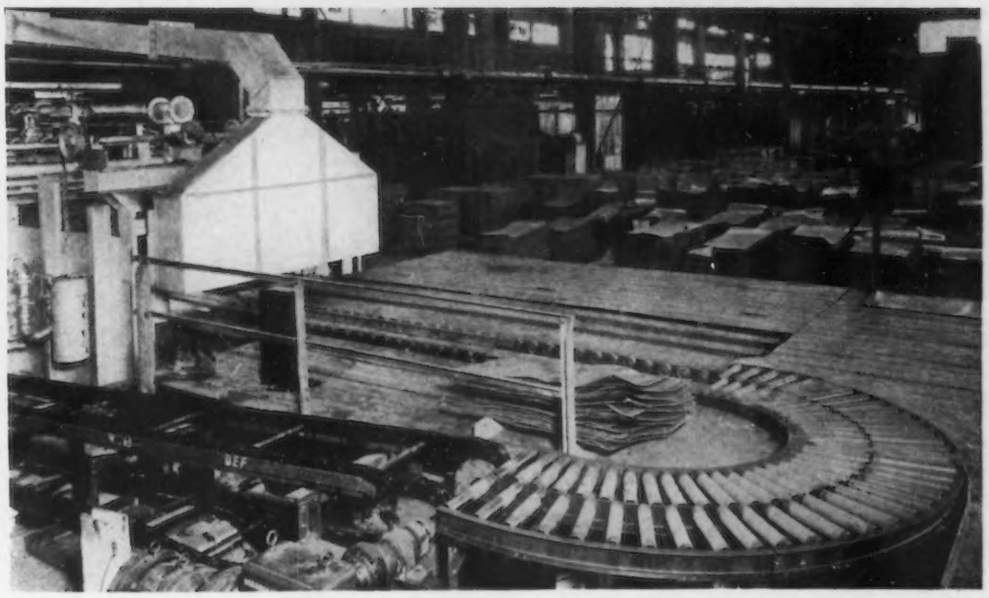

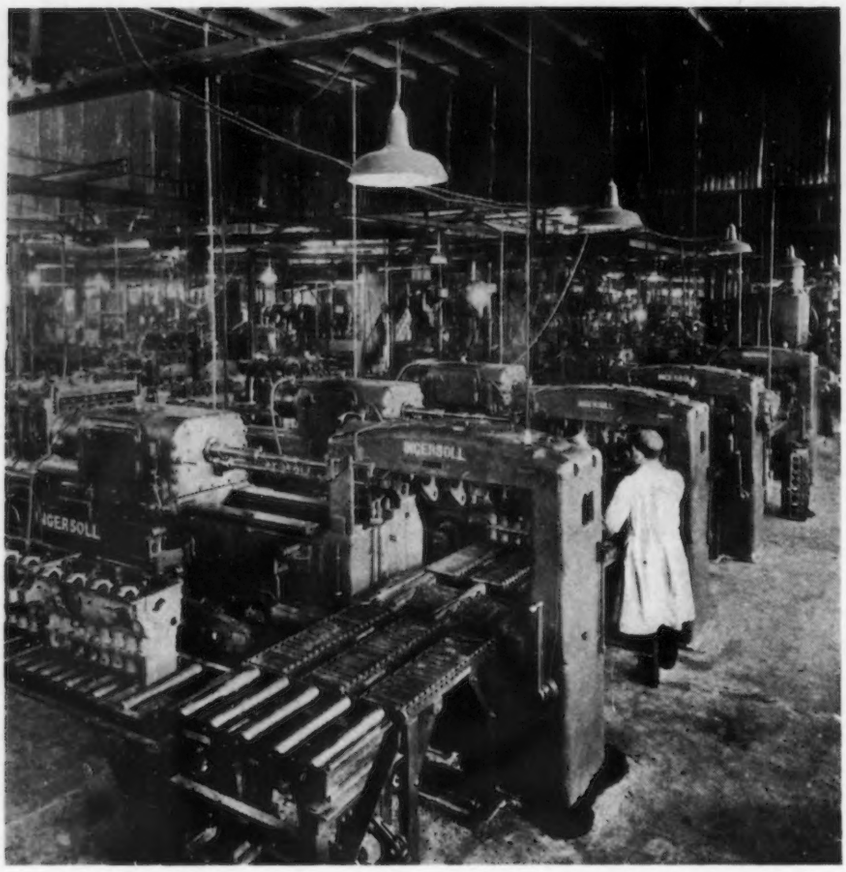

FIG. 8—Mathews gravity roller conveyor sections, passing directly through the Ingersoll machining units, coordinate the flow of production on cylinder blocks.

tions in which the theme is continuous, progressive movement, is to save time, effort and space primarily, and to effect many other economies which assume different forms for different situations. Competition sets the selling price, but the manufacturer himself is the final arbiter in the matter of manufacturing costs. And production which is geared to a system of start and stop, which involves any waste motion resulting from handling or rehandling, which is saddled with an improper and inefficient use of the space within which manufacturing operations are carried out, suffers from the internal competition of poor management. That competition has no rightful place in industry today.

Note the unique manner in which a line of Mathews roller conveyors coordinates successive operations in the machining of automotive engine blocks in Fig. 8. This conveyor goes right through a number of Ingersoll units arranged for successive drilling, reaming, tapping, boring and other operations on the cylinder blocks. At the far end of the group of machine tools a gravity roller conveyor brings each block into position for the first operation; in between each machining unit a section of gravity roller conveyor automatically takes the block as released from one machine and delivers it to the next machine; at the end of the line a special corner section of roller conveyor receives the block and transfers it to a gravity roller conveyor set at right angles to the previous line of flow, for delivery to the next succeeding set of machining operations. Here is perfect coordination, with actual handling reduced to an absolute minimum.

Foundry Handling

An interesting combination of handling equipment is shown in Fig. 9, where portions of a Standard gravity roller, power apron, and belt conveyor installation handle sand and molds in the foundry. Metal is poured into molds carried on the transverse gravity

(CONTINUED ON PAGE 123)

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FIG. 10—Heavy molds for radiator castings are easily handled on this Logan three-rail, double roller gravity conveyor, pouring literally "on the move."

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FIG. 1—A 70-ton hopper car utilizing welded construction with a weight saving of 600-800 lb. It is one of 100 cars built by the Mount Vernon Car Co. for the Kansas City Southern Railway.

Hopper Car Construction Simplified By Welding

IT is only natural that designers and builders of railroad equipment, called upon to produce equipment capable of operating at the high speeds demanded today, should have considered new structural processes as well as the new steels developed for the express purpose of providing maximum strength at minimum weight. It is natural also that manufacturers of railroad freight cars impressed with the results obtained by passenger car manufacturers should have followed the example set them. By using the new high strength steels and a structural process which keeps weight at a minimum, manufacturers have produced passenger trains capable of operating at speeds never before practical.

By A. F. DAVIS

Vice-President, Lincoln Electric Co., Cleveland

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The structural process referred to is electric arc welding, which is now being used increasingly in the manufacture of freight cars.

This process provides the car builder with simpler and more economical production and provides the operator of the equipment higher speed and lower cost operation due to the reduced weight.

Simplicity is a fundamental advantage of arc welded construction. This simplicity is attained because two structural members may be

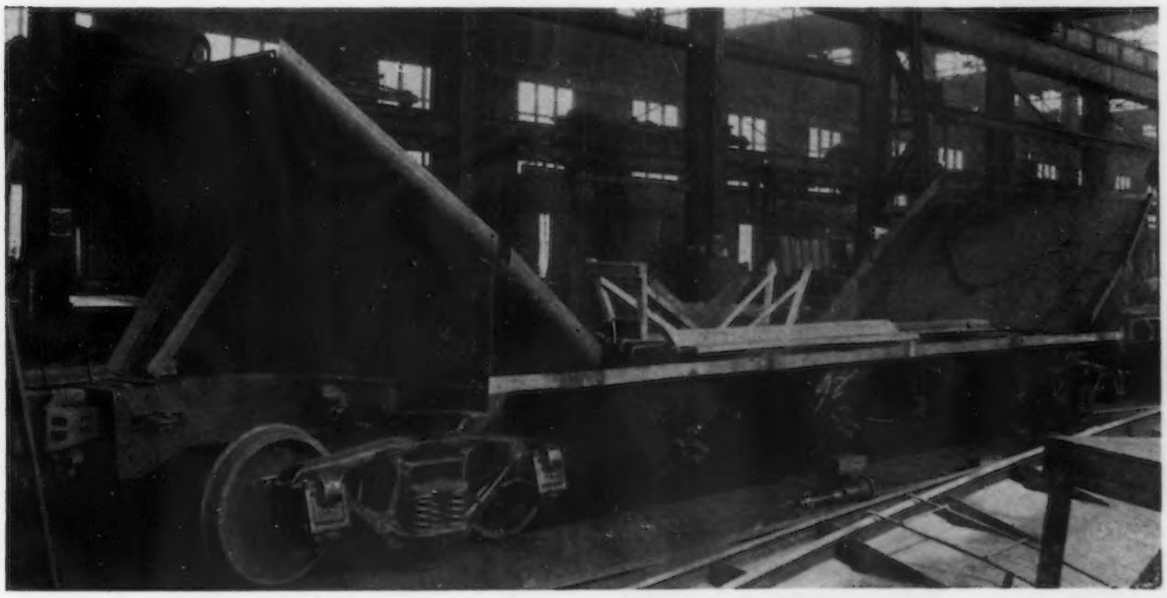

FIG. 2—Hopper car during assembly for arc welding.

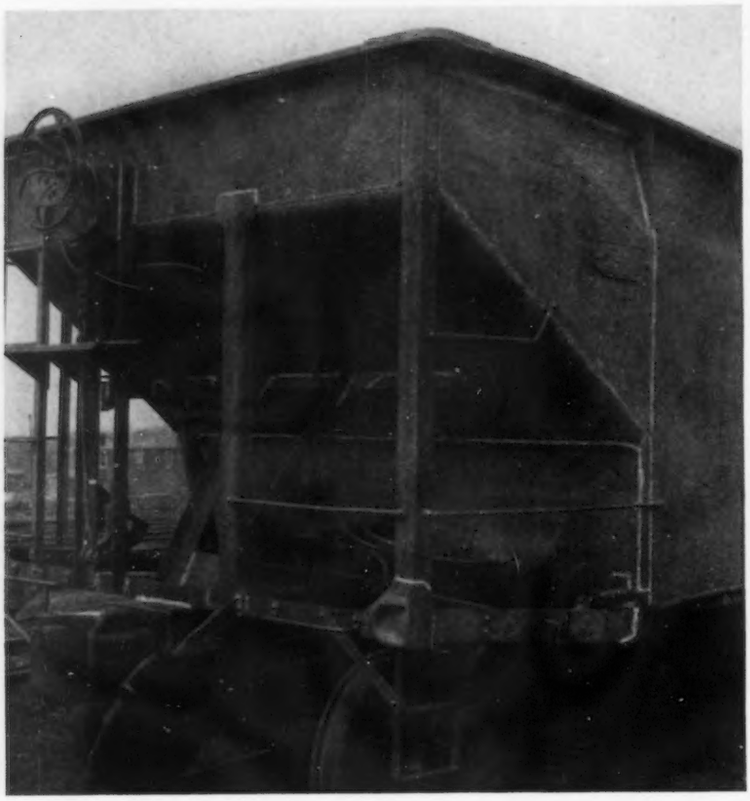

FIG. 3—Close-up view showing manner of joining the sides and ends of car by welding.

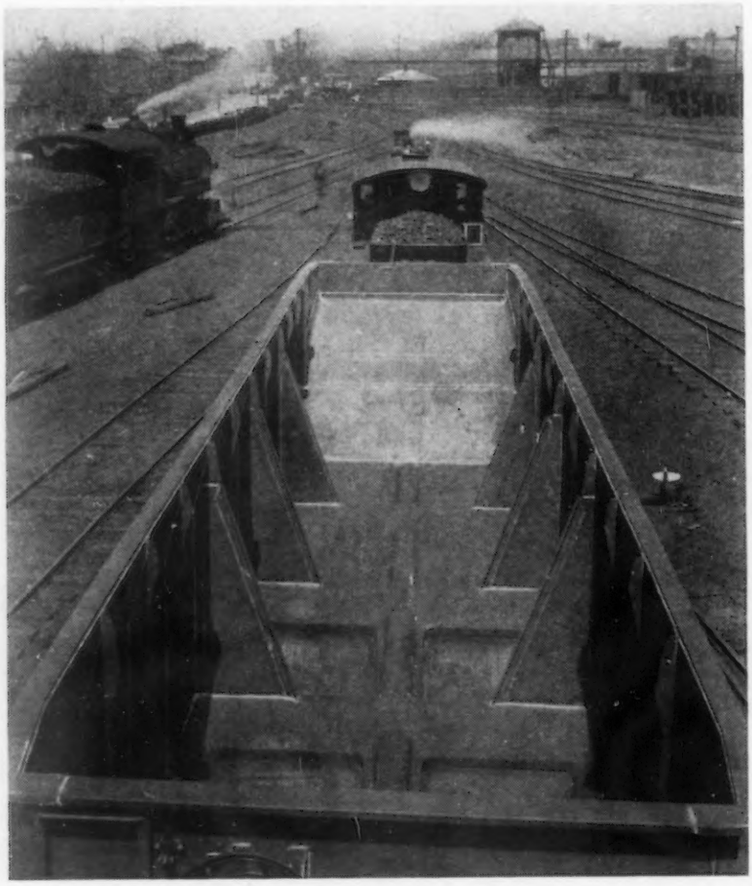

FIG. 4—Interior of weld fabricated hopper car.

joined directly together without the use of a third or connecting member. This is responsible for saving materials, simplifying designing and detailing and reducing time and cost of construction.

The process is of further advantage in the construction of railroad equipment inasmuch as it fuses the parts together so that the strength at the point of fusion is equal to or better than the strength of the steel welded. This is true whether the material of construction is mild steel or high tensile steel. In the case of the former it is now common practice to obtain welds having a tensile strength as high as 65,000 lb. per sq. in. Where high tensile steel is being welded, the tensile strength of electric welds may easily be in excess of 110,000 lb. per sq. in. Thus, it can be seen, electric welding enables the car builder to obtain maximum economy without sacrifice of quality.

70-Ton Hopper Car Built by Welding

The accompanying illustrations show applications of electric welding in the construction of railroad hopper cars by the Mount Vernon Car Mfg. Company, Mount Vernon, Ill. The car illustrated in Fig. 1 is one of 100 recently completed for the Kansas City Southern Railway. It is a 70-ton steel quadruple hopper car. It is 40 ft. 8 in. long inside, 41 ft. 8 in. long over the strikers, 31 ft. 8 in. long on truck centers and 10 ft. 5 in. wide over bulb angles outside. The cubical capacity of the car, level full, is 2730 cu. ft. With a 10-in. average heap, the cubical capacity is 3053 cu. ft. The arc welded hopper car weighs 54,000 lb. The builder reports that the same size car built by conventional methods would weigh 600 to 800 lb. more. The company also reports that time was saved in designing and detailing of this car although it is its first experience with arc welded construction. As their experience with this class of work increases, the company anticipates that savings will be much greater.

Sides and Ends Fabricated in Jigs

The construction of this car is clearly shown in Figs. 2, 3 and 4. Construction utilizes steel plates, angles, channels, bulb angles, etc. such as used in conventional hopper cars.

The sides and ends of the car are

(CONTINUED ON PAGE 123)

Steel Barrels Finished Under Well Controlled Conditions

STEEL barrels and drums with sanitary linings, proof against attacks by chemicals and food products are now finished in sealed rooms supplied with filtered air and the linings then baked on in specially built gas-fired ovens. This procedure is followed at the plant of the National Steel Barrel Co., Cleveland, one of the largest manufacturers of steel barrels. The lining was developed by this company as well as a ring and simple locking device which holds the head on with an air-tight seal. Straight

By J. B. NEALEY
American Gas Association

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automatically seam welded. A large capacity machine and fast handling produce an average of 220 welded barrels per hour. A stripping machine then works down both sides of the flash of the weld and the inside of the seam is polished with a small rotary burnisher. A roll table takes the shells to the flanging operation which is started on a small horizontal machine and finished in a press which rolls the top for an open end and flanges the other for the bottom. (Tight end barrels are flanged on both ends on another line.)

Sent across another table to another set of rolls, the barrels have the stiffening corrugations formed. They are then set up in a machine where the bottoms are put in with a double seamer. Testing under air pressure for leaks is the final operation prior to finishing. A long gravity conveyor takes them into an air filtered room where a lever device automatically lifts them onto rolls, one at a time. A special lacquer is applied by spray to the inside and the barrel is ejected onto the lower conveyor of a gas oven. Parallel to this set-up is a roller conveyor for spraying the heads, which are then put on a second conveyor, in the same gas oven, above the barrel conveyor.

Two Conveyors in One Gas Oven

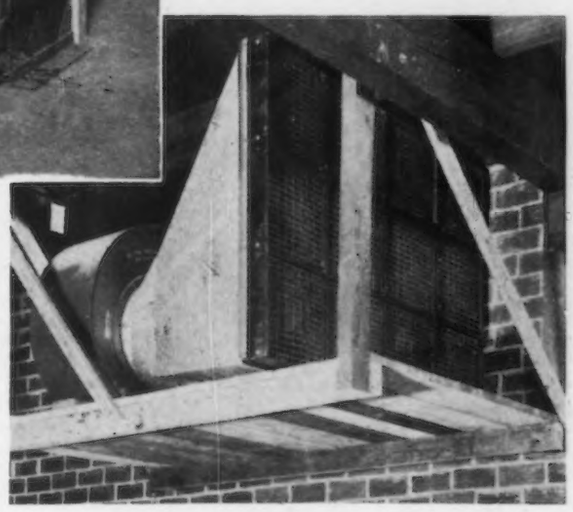
This double conveyor gas-fired oven is of the forced convection type and is 100 ft. long, 8 ft. wide and 4½ ft. high. A platform or hearth, along which the barrels roll, is wide enough to accommodate two rows

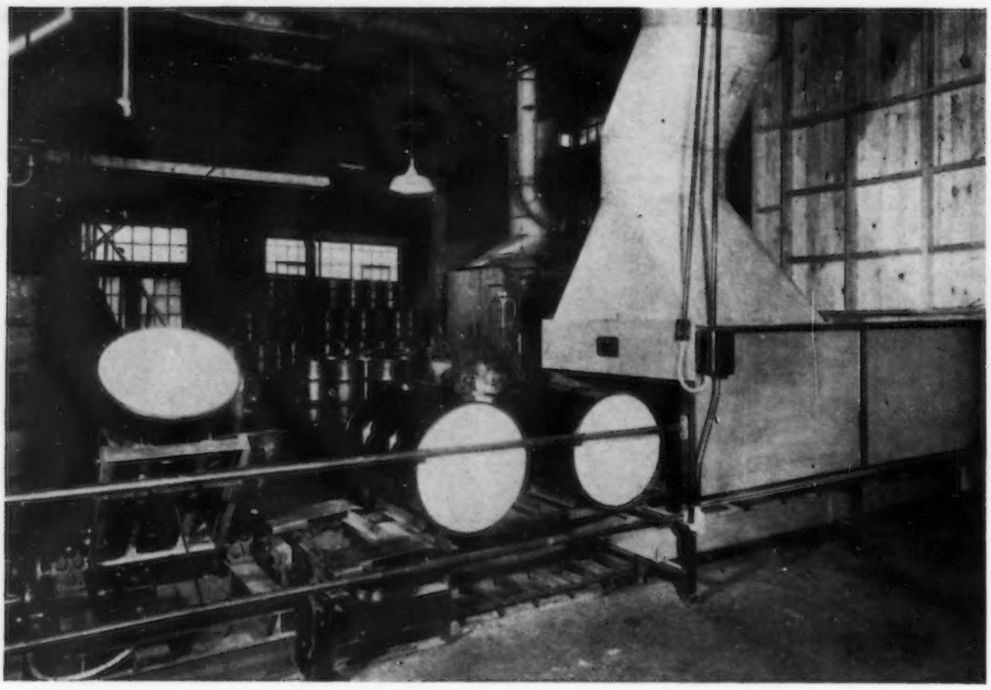
line mechanical production has been established and a high rate of output has been achieved with a minimum of machines.

Steel sheets, 12 to 22 gage, already sheared to the proper lengths and widths, are brought to the head of the line on trucks. Here they are passed through rolls which form them to barrel shape and are then

ABOVE. Discharge end of continuous baking oven equipped with a separate gas heater and using the forced convection method. Above the barrel conveyor is a second one for the heads.

AT right. Through this filter bank is forced 20,000 cu. ft. per min. of clean, fresh air to the room where steel food containers are lacquered inside and out.





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AFTER the barrels leave the final baking oven, they are upended automatically by a device controlled by the weight of the barrel and are conveyed either to storage or directly to freight cars.

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of work. Two moving parallel chains with angle irons between keep the barrels rolling through. This conveyor returns in a compartment below the oven. The conveyor above consists of several small parallel closed loop chains which carry two rows of barrel heads. This oven is constructed of sheet steel panels lined with asbestos and insulated with 4 in. of rockwool. A heater sets on top, near the center, with a duct on either side to carry the hot products of combustion to the oven. One each side, about half way from top to bottom, are distributing ducts running both ways, with openings into the oven on 4 ft. centers.

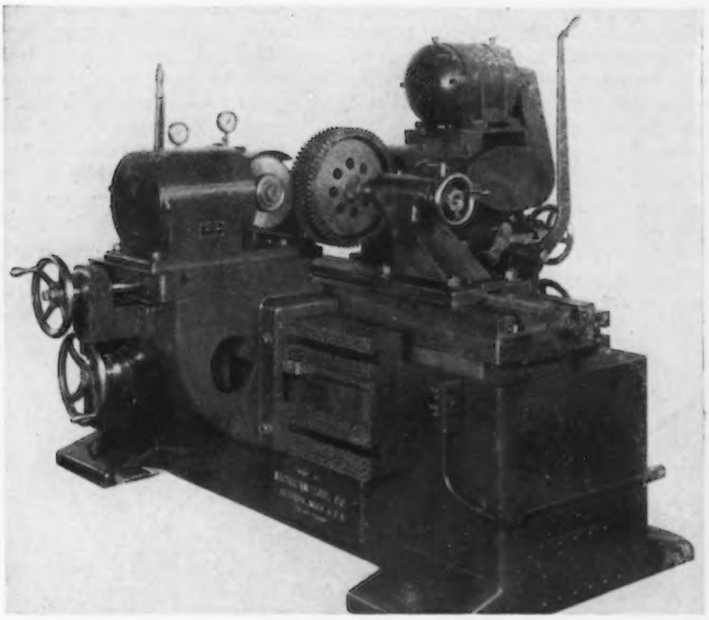
Formerly there was a return duct system whereby the waste heat was returned for reheat and recirculation. This type of lacquer, however, came out still a little tacky so this system was abandoned and all fresh air is now used. The temperature is 450 deg. F. and baking period 30 min.

The 4 x 6 x 3 ft. heater of sheet steel is lined with 4½ in. of firebrick and is insulated with 2 in. of rockwool. Three gas burners fire into one end of this heater and a fan at the other forces the products of combustion into the oven by way of the ducts. A thermostat actuating a motor valve in the gas line automatically maintains the desired temperature. It operates the burners with a high and low setting. Another motor valve in the gas supply line automatically shuts off the gas in case of fan failure. Such failure allows the duct damper to close, thereby opening the motor switch.

Back of the heater, some 10 ft., is a fan for exhausting waste heat

(CONTINUED ON PAGE 122)

AFTER the outside of the barrels and heads are sprayed, they are immediately loaded in another conveyor-type japanning oven of the forced convection type, using heat from separate gas-fired heaters located on top. The heating air is filtered so that a perfect finish may be obtained.



NEW Michigan universal lapping machine set up for simultaneously lapping both sides of a herringbone gear. Close-up of the Universal lapper showing how both front and back tooth faces of a gear may be lapped without reversing the machine.

Duplex Gear Lapping Machine Designed for Maximum Flexibility

A NEW crossed-axes gear-lapping machine, the Michigan Universal, is announced by Michigan Tool Co., Detroit. It will lap gears ranging from 1½ to 20 in. in diameter, and clusters up to 30 in. in length. Change-over time for gears of the same pitch and helix angle grade is about 5 min., while about 20 min. is required to change over for gears of entirely different characteristics—involving a change of laps.

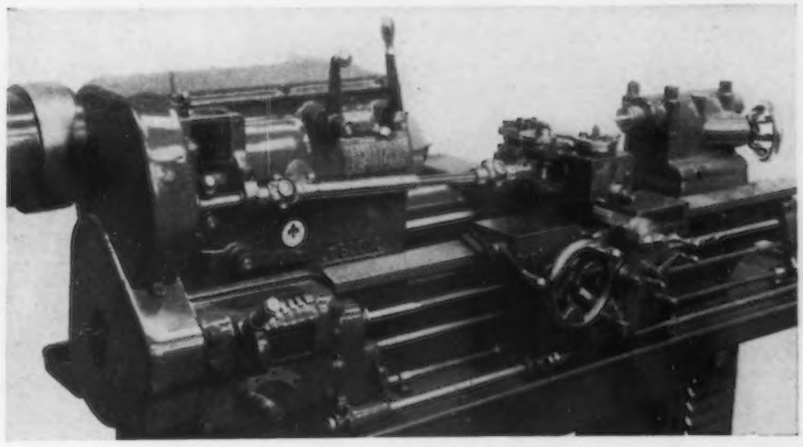
The machine is a duplex type, with two laps which may be used either for lapping front and back side of gear teeth at the same time, with the machine running in one direction only, or may be set to lap two separate gears—as on a cluster — simultaneously. This makes possible a reduction in lapping cost, cuts handling time in half and increases the production rate proportionately. The machine has an automatic cycle control mechanism adjustable from 5 sec. to 20 min. in both directions.

The two laps are located at either side of the work. The lap at the back of the machine is the driving member, being driven by a 3-hp. 1140-r.p.m. motor. The work is mounted either between centers or on an arbor. The centers are mounted on a reciprocating table the stroke of which can be set to anything up to 5 in. The table is driven by a 3-hp. 1140 r.p.m. motor. The work itself drives the second lap at the front of the machine, which lap in turn is provided with an adjustable hydraulic brake for establishing the correct lapping pressure between laps and gear teeth. The laps may be set at varying angles to the axis of the gear being lapped (cross-axes lapping). Both lapping heads are mounted on slides so lapping two gears of different diameters simultaneously is possible.

Improved Relieving Attachment For LeBlond Lathes

AN improved fully-universal relieving attachment has been developed by the R. K. LeBlond Machine Tool Co., Cincinnati, for application to its tool room lathes. With the use of only two cams any relief from 0 to ¼ in. can be obtained. The majority of work can be handled without angularity of the knuckle joints, which under the most extreme conditions assume only a slight angle.

No supporting blocks or additional knuckle joints are necessary



to change from external or internal or end relief, and for spiral relief only a simple adjustment of the change gear combinations is necessary. With the built-in coarse threading attachment furnished most of the change gear combinations can be obtained directly from the quick change box.

The driving mechanism in no way interferes with operation of the lathe for ordinary work. The drive from the gears on the end of the lathe is through a telescoping shaft to the actuating mechanism on the tool-slide. The tool-slide replaces the regular compound rest and incorporates the same swivel feature, enabling the operator to swivel the slide to the proper angle for angular, side and end relief. The swivel is large in diameter and is accurately graduated.

The drive to the actuating mechanism is through a pair of hardened miter gears, one of which is keyed to the camshaft. Mounted in a swivel bracket, the driving gear can be swiveled about the center of the driven gear and clamped. With this construction the driving shaft remains straight regardless of the angular setting of the tool slide—a feature emphasized as entirely eliminating harsh cramping action.

The driving cam revolves constantly and imparts an oscillating motion to a follower mounted on the vertical eccentric shaft which may be adjusted in relation to the follower cam. The latter imparts the reciprocating motion to the tool slide by means of the eccentric, which is formed on it, and a positive connecting rod to the tool slide. Variation in stroke of the tool is accomplished by adjusting the eccentricity of the vertical shaft in relation to the follower cam.

Adjustment for relief may be quickly made, and graduations on the follower cam permit accurate setting of amount of relief. A heavy spring serves to return the slide against the low side of the driving cam. The tool slide is furnished with a three-position tool-block that is adjustable laterally on the slide by fine threaded adjusting screws.

Improved Red Ring Gear Lapping Machine

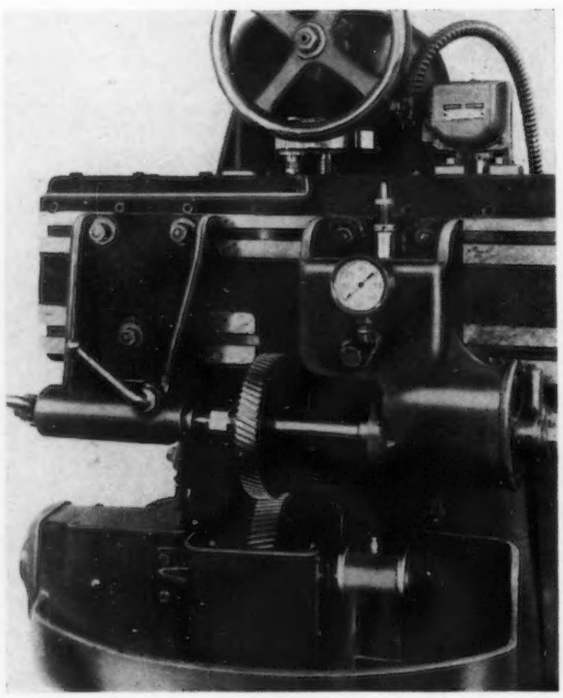
A NUMBER of improvements have been made in the latest model of the "Red Ring" gear lapping machine, known as the GLF, manufactured by National Broach & Machine Co., Detroit. Like its predecessors, the primary function of this machine is the correction of spiral angle, eccentricity, involute curvature and tooth spacing in gears, which frequently appear after heat treatment. These errors can be corrected faster and with greater precision than has ever been possible previously on National Broach machines.

The new design has a simpler machine structure and is easier to set up. It is likewise more rigid and more durable than its predecessors. As before, it utilizes the crossed axes principle of lapping in which the lap gear drives the work gear. Rotation of the lap in one direction processes one side of the work gear teeth. The angle between the work gear spindle and lap spindle is readily adjustable because the lap is mounted on the machine table, which has a 15 deg. swing and a vernier adjustment for close setting.

The work gear spindle is carried on a cross slide which automatically reciprocates the work gear across the face of the lap. Flexibility of this movement is obtained by hydraulic control and actuation of the cross slide movement. Length, speed and number of strokes may be varied at will. The entire cycle is automatic. This flexibility in cycle control permits a greater degree of lapping on one side of the tooth than is given on the opposite side, if desired, such as in the case of drive gear teeth.

A hydraulic brake acting in conjunction with the work gear spindle is used to load this spindle and provide the necessary pressure between the teeth of the lap and those of the gear. The amount of this pressure may be varied and is indicated on a dial gage in front of the operator.

The improved GLF machine will accommodate gears up to 8 in. in diameter. Maximum lap face is 3¾ in.



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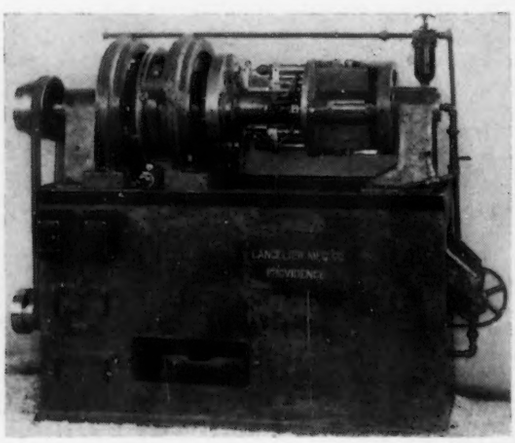
EASE of set-up is a feature of the new Red Ring gear lapping machine shown at left. Below is pictured the Langelier continuous cap screw drilling machine.

Drills 2400 ¼-In. Cap Screws Per Hour

THE continuous-type cap-screw drilling machine here pictured, a recent product of the Langelier Mfg. Co., Providence, R. I., is constructed with four horizontal drill spindles, and the work is chucked in spring collets. The work, instead of the drills, is rotated.



The work carrier rotates about fixed cams which automatically open and close the chucks, eject the drilled screws, and stop the rotation of the collets at the loading position. This carrier is driven through worm and worm wheel and a three-step cone pulley which provides carried speeds of 6.6, 8 and 10 r.p.m. A three-step cone pulley on the chuck driveshaft provides speeds of 1400, 1800 and 2500 r.p.m. at the collets.

The drills are fed by a fixed cam located at the end of the machine. A section of this cam is interchangeable to provide for different depths of drilling. Each drill spindle has a receding steadyrest which carries a guide bushing for accurately starting the tool into the work.

Hourly production obtainable is said to range from 2400 in the ¼-in. size screws to 1600 in the ½-in.

Rigid Motor Lamination Repunching Press

IN the large quantity production of field and rotor laminations for maximum economy of material, the blanks are cut from full-size sheets in large automatic presses. These blanks are then completed in suitable compound dies operated in repunching presses which must be exceptionally rigid and accurate. For this service The Toledo Machine & Tool division, E. W. Bliss Co., Toledo, has brought out a new design of its No. 54 straight-sided, single-crank press. This press is of the flywheel type, with a direct-connected motor drive to the flywheel by means of a silent pinion meshing with teeth on the flywheel. A 3-hp., 820-r.p.m. motor is required to drive the press.

The frame is of compact one-piece construction cast in chrome-nickel pearlitic semi-steel for maximum rigidity.

The press has a 2½-in. stroke, distance bed to slide 13 in., and a bolster with T-slots and poppets for inclined die setting. The shaft has a diameter of 4 in. at the bearings and a diameter of 6½ in. at the pin. It operates at the rate of 65 to 90 strokes per min. The fixed legs hold the press at an angle of 40 deg. with the vertical and support the press at the back by heavy steel rods.

The slide face measures 14 in. sq. The slide, which has extra long and accurate gibbing actuates a cam stripping device, adjustable for stripping at any point of the stroke. It also has an adjustment of ½ in. for the length of stem.

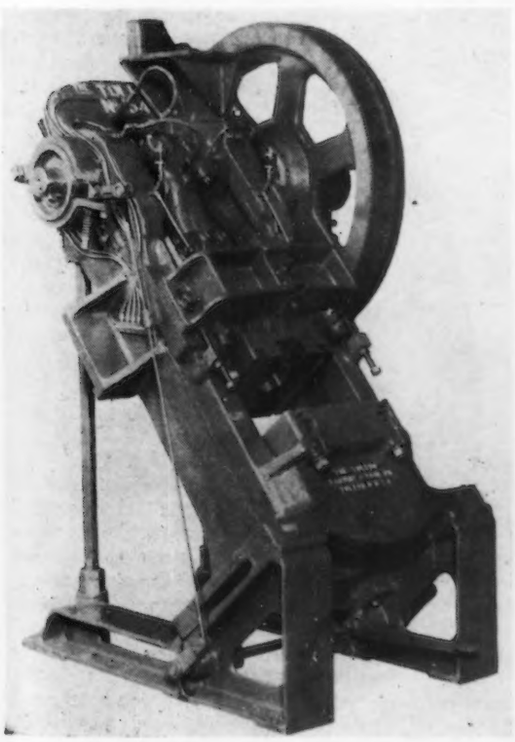
Lubrication requirements are taken care of by a one-shot manually operated grease device, together with sight feed oil cups.

"Low-Swing IMP" Lathe Made More Flexible

BETTER lines, and improvements that make for greater flexibility and economy in tooling and enable taking full advantage of cemented-carbide tools feature a new model of the "Lo-Swing IMP" lathe built by the Seneca Falls Machine Co., Seneca Falls, N. Y. Although designed primarily for work requiring high speeds and close accuracy, the machine is said to be suitable also for turning heavier work, such as small pistons, bushings and gear blanks.

An extremely long bearing on the carriage is obtained through a headstock design which permits the carriage slide to pass under it. Longitudinal movements are obtained by a drum cam. An end cover-plate facilitates removal of this cam and permits timing the machine for automatic stopping and easy adjustment of the cams for carriage cross-feed when used. Feeds from 0.0005 to 0.050 in. are obtainable by means of pick-off gears. The spindle, driven by V-belt or chain, is mounted in precision preloaded ball bearings and is constructed so that speeds up to 5000 r.p.m. may be maintained.

The lathe illustrated is equipped with a magnetic chuck for facing disks, but the machine may also be supplied with a tailstock for between-center work. The tailstock may be arranged for lever or for air operation and also with a quill carrying a built-in revolving tail canter. The new model "Lo-Swing IMP" weighs approximately 2000 lb. It swings 9¼ in. over the carriage and 4 in. over the cross-slide. It will accommodate work 8 in. long between centers.



AT LEFT
TOLEDO straight-sided single-crank press for punching motor field and rotor laminations.

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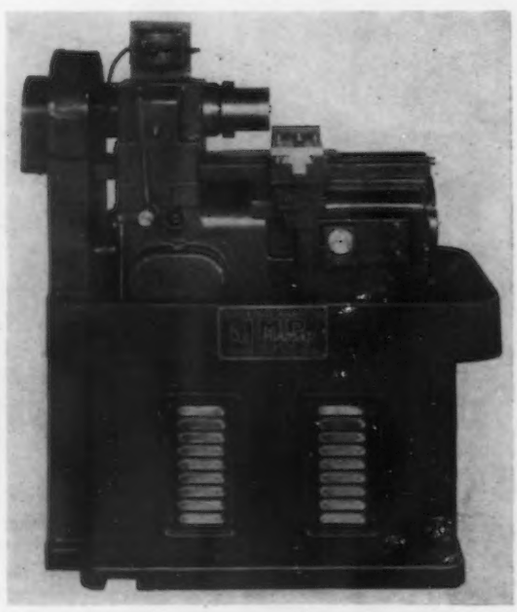
AT RIGHT
LO-SWING IMP lathe improved to give greater flexibility and economy of tooling.



THIS WEEK ON THE ASSEMBLY LINE

. . . Briggs goes into accessories business after merger plans collapse in final stages.

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. . . Body manufacturing plant for Ford likely to become reality.

o o o

. . . Tractor gets dressed up with pleasure car equipment, including self-starter; Detroit factory starts assembling 25 a day.

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. . . "Boss Sit-Downer" takes clear-cut stand on signing with irresponsible union after five-months' trial.

DETROIT, July 19.—After half a year of speculating about the plans for a merger of Briggs Mfg. Co. and Motor Products Corp., prognosticators can start all over again. Because of opposition from a group of Motor Products Corp. shareholders who held out against proposed terms for the combine, the Briggs company revealed Friday that the plan had been dropped. Originally it had been decided by executives that Briggs holdings would be taken on a 3-2 ratio, uniting the companies so they could together produce a complete line of bodies and accessories. Final action was to have been taken at meetings July 22 and 23.

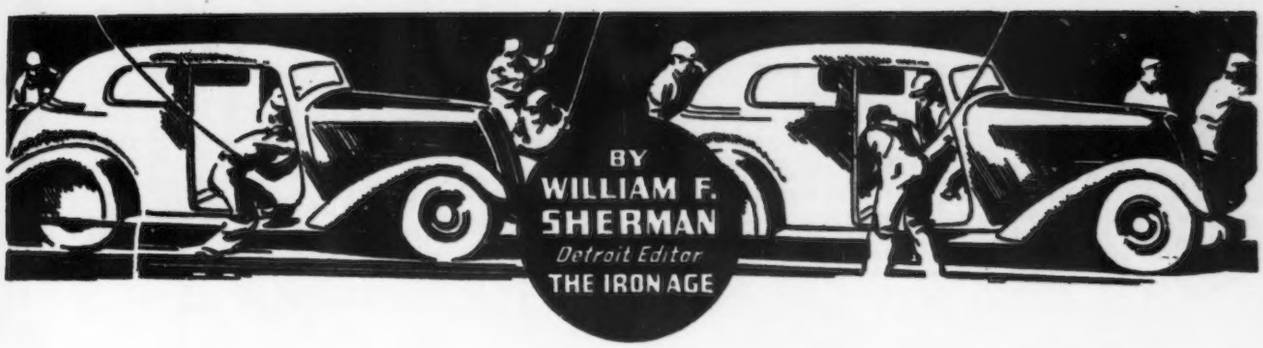
Chief result of the disruption in the plan is the announcement of Briggs' intention of building and equipping its own accessories plant to carry out the original purpose of the merger. Walter O. Briggs, chairman of the board of the Briggs company, and W. P. Brown, president, in a letter to Briggs shareholders declared that plans to construct and equip the new building will be made immediately.

Good guessers still have a chance to decide a few of the remaining points, however. It had generally been conceded that merger of Briggs and Motor Products would aline these two firms more closely with the Chrysler Corp. In fact, it was even predicted that the merged company would before long become a Chrysler subsidiary and would be, in fact, Chrysler's "Fisher Body Division." Those who like to guess also have another chance to figure out Ford's position under this new set of circumstances. They were predicting freely a day or so ago that if Briggs and Chrysler were alined very closely Ford would go into the body building business himself in a big way. Briggs, once almost wholly a Ford supplier, is at present supplying both Ford and Chrysler with most of their bodies. Although there are no inquiries being made by Ford at present for equipment which would indicate that he intends to start a body plant, it is generally believed that this will be part of his expansion program before long. At least when he does jump his production, and he seems to be aiming at almost doubling it, he must develop a larger source of supply or do more body manufacturing than he is doing now in his own plant.

On the heels of the revelation that an additional battery of 61 new Koppers coke ovens is being built at the Rouge and the disclosure that Ford is expected to have a new and larger blast furnace added to his present furnaces, it has been learned that Ford's open hearth capacity is to be increased. One new steel unit is certain; possibly two will be erected.

Ford Assembly Line Idle Until Aug. 9

At present the larger part of the Ford company's Rouge plant and two-score other plants and branches throughout the United States are closed, the annual inventory and vacation period having started last Friday. Production, it has been announced, will be resumed Aug. 9 on a 6000-car-a day schedule. The closing has not affected blast furnaces, coke ovens,



the cement plant, open hearth mill, merchant mill and cold finishing mill, the glass plant or paper mill. Naturally, maintenance men are on the job and the jobbing foundry, pattern shops, tool rooms, engineering departments and most of the offices are at a peak of activity. Incidentally, a new policy is being followed by the personnel department for this lay-off. Workers will be issued furloughs, whereas in previous years they were paid off entirely and badges collected, so getting back on the job meant being re-hired, even though the worker had been a Ford man for years.

New Tractor Production

A new business got under way last week in Detroit, when the Motor City for the first time in a long while saw tractors coming out of a factory door. On a special assembly line in its Detroit factory, Graham Paige Motors Corp. started production on the new Graham-Bradley all-purpose tractor. It is probably the first machine of its kind, engineered specifically to use pneumatic tire equipment. It incorporates, Graham executives said, practically all the tried and proved mechanical features of the automobile. A sort of christening ceremony was held in the middle of last week at the Graham farms, Washington, Ind., where 200 visitors saw demonstrations of the Graham-Bradley tractor doing all the usual farm tasks and some new jobs to which the tractor is said to be very well adapted. Tractor specifications usually interest only a few groups of persons, but this one is unusual, particularly because of the high speed at which it works. In high gear—third—it can pull two or three 14-in. bottom plows through any soil at 6.2 miles per hr. In its fourth speed, it can pull trailer loads at 25 miles per hr. on the highway, thus serving its owner as a truck and offering possibilities for industrial haulage applications. With the four-speed transmission, plus a reverse gear, standard equipment also includes battery, generator and self-starter, fenders over the rear wheels with swivel lights mounted on the fenders for night operation. A hydraulic power lift is driven from the motor timing gears. Initial production is 25 units a day, and Sears, Roebuck & Co., retail stores will handle sales of the first 250 units in seven important agricultural states. Graham itself will make arrangements for the sale of tractors later in other localities. Assisting in sponsoring the tractor

TRANSMISSION and rear axle assemblies are given a final noise check-up in a closed room before they go to the "bank" from which the assembly line draws. Alongside the Chrysler power plant line, each overdrive transmission is subjected to a running test at brake load equal to a car speed of 60 m.p.h. The operator has a keen ear, but his hand on the case helps to detect vibration.

is the David Bradley Mfg. Works, a Sears, Roebuck subsidiary.

Fitting into the general picture of an unusually successful year for truck sales, rumor has it now that Graham Paige will next take up truck manufacturing. In 1925 Graham Bros. was the world's largest volume manufacturer of 1½ ton trucks, later selling out its truck business to Dodge and Chrysler.

Revolt Against Labor Dictation

In Detroit two separate cases exist now where an industrial leader is demanding a showdown with the United Auto Workers union. Walter L. Fry, president of a company which manufactures automobile seat cushion covers, has shown himself to be an outstanding individual in his dealings with the UAW. Last spring he became the nation's No. 1 sit-down boss and now, after five months' experience with the UAW, he is insisting on the union's showing "moral and financial responsibility and incorporation" before he has any further dealings with it. Replying to demands for a new contract, he wrote to the UAW:

"A contract with the UAWA must be no different, so far as I am concerned, than any other good business transaction. For the protection of my stockholders, I must insist upon the moral and financial responsibility of those with whom I deal."

In a statement to his employees concerning UAW leaders, Mr. Fry asserted, "These individuals have made misrepresentations about UAWA activities, have coerced non-union employees and have kept the plant in such a state of turmoil that the company for the first time in its history suffered a financial loss during the heavy production season. Managing this company has become a non-profitable aggravation. Time which should have been given to improving our product and selling it is now taken up by such a multiplicity of petty annoyances that I have come to a point of physical and mental exhaustion, and I refuse to continue manufacturing operations under these conditions."

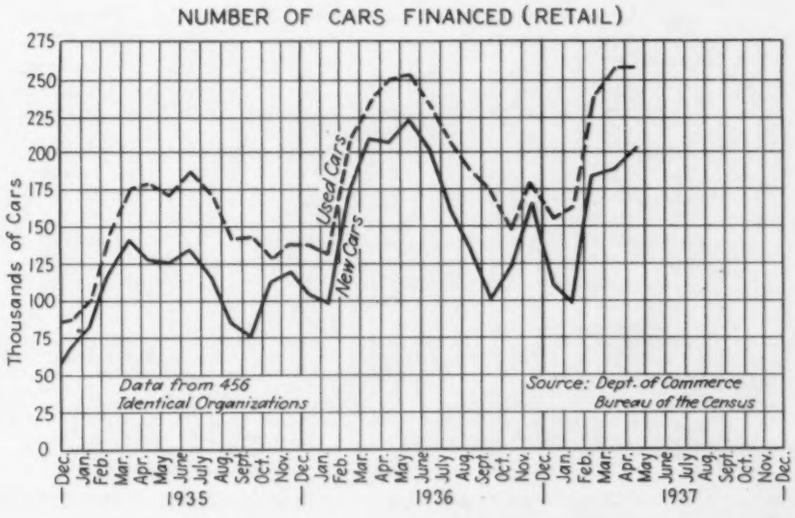
Will CIO Stage Another Battle?

The Fruehauf Trailer Co. is understood to have taken a somewhat similar position with respect to signing a contract with the UAW. Following Tom Girdler's successful stand in refusing to tie business down to a contract that labor will not live up to, it is anticipated that many other industrialists will shortly be attempting the same thing. The marked recession that has already been shown by this CIO bull movement leads to serious consideration of the next possible steps of the CIO. A rival union leader spoke frankly on this subject today. He predicted a large-scale face-saving maneuver on the part of John L. Lewis and his subgenerals, probably to take the form of a general strike and possibly in connection with the CIO's main attack on Ford. It is no time to cry "wolf," but after the defeat at the hands of steel, a series of other setbacks and a militant attack being launched by the American Federation of Labor, the CIO is likely to make use of all of the multitudinous groups at its command in what may be its final battle. In Detroit, the AFL is now setting up a regional office with a score of organizers under Thomas N. Taylor, president of the Indiana Federation of Labor. Despite denials by higher-ups, many union men look for the dismissal of Frank X. Martel, president of the Detroit and Wayne County Federation of Labor, who has supported the CIO in opposition to William Green. Other AFL leaders said that in the AFL-CIO battle, Detroit and Pittsburgh are regarded as key cities.

Martel, just back from an eight-week European trip, where he attended the Labor Conference at Geneva, finds himself an indorsed candidate for the Common Council, with CIO backing but with opposition from the Building Trades Council, which is said to comprise about half the membership of the AFL here. The Building Trades Council, incidentally, has gone on record as saying that it would join no campaign with the UAW or other CIO components. Martel's decision on accepting the candidacy has been held up, apparently contingent upon the outcome of the settlement of his status under the Green regime.

Spurting down the stretch, the auto industry last week jumped production approximately 15,000 units to total 115,380 passenger cars and trucks for the United States and Canada. These operations are far above those of a year ago, in which the corresponding week showed 97,768 units. The production figures were released by *Ward's Automotive Reports*, which showed last week's four-day total at 100,131. During the week, all principal producers returned to the five-day week except Ford, which wound up its season's activities on Friday, and Packard, which has already begun its changeover for 1938 models. General Motors pressed hard to clear its books of unfilled orders, production rising to 49,840 from 39,128 the previous week. Chrysler advanced to 26,300 from 21,050. Ford dropped to 26,655 from 27,127. For the present week, production will slump at least 25,000 units because of Ford's shut-down. Steel sales offices in the Detroit area are now reporting substantial orders for 1938 models, but there is considerable uncertainty about the introduction dates for the new cars, the labor situation probably being an important factor when executives sit down to discuss announcement dates.

Manufactured products in Illinois attained a value of $3,818,213,281 in 1935, according to figures received by the Illinois Manufacturers' Association from the United States Census Bureau. This was a gain of 52.5 per cent over 1933 when the value of products amounted to $2,502,175,233. The value of products for 1935, however, was 38.7 per cent below that of 1929 when the census returns showed a total value of products of $6,232,863,025.



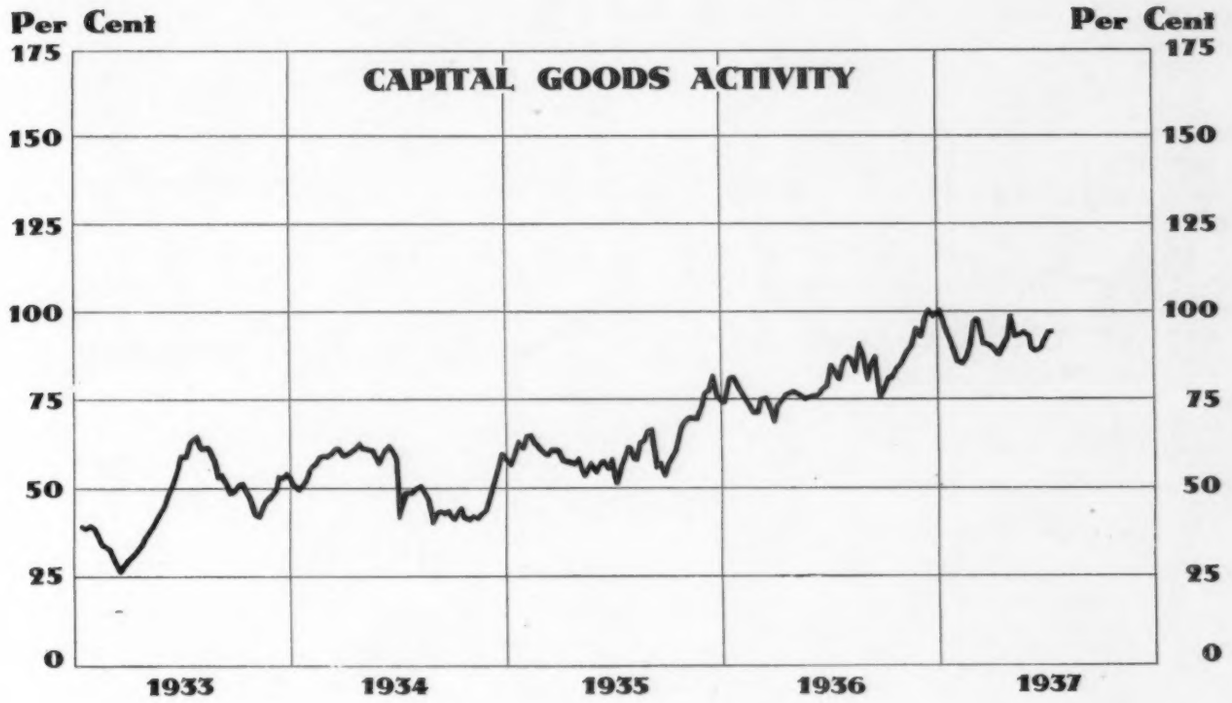
Current Metal Working Activity Statistically Shown

These Data Are Assembled by The Iron Age from Recognized Sources and Are Changed Regularly as More Recent Figures Are Made Available. Boldface Type Indicates Changes This Week

	June 1937	May 1937	June 1936	Six Months 1936	Six Months 1937
Raw Materials:					
Lake ore consumption (gross tons)[a]	4,639,733	‡5,339,925	3,763,289	19,612,496	29,373,959
Coke production (net tons)[b]	.....	4,798,511	3,787,711	21,295,300	.....
Pig iron:					
Pig iron output—monthly (gross tons)[c]	3,107,506	3,537,231	2,586,240	13,528,226	19,706,593
Pig iron output—daily (gross tons)[c]	103,584	114,104	86,208	74,331	108,876
Castings:					
Malleable castings—production (net tons)[d]	.....	55,960	43,766	274,092	.....
Malleable castings—orders (net tons)[d]	.....	57,327	42,848	265,055	.....
Steel castings—production (net tons)[d]	.....	95,995	70,323	341,582	.....
Steel castings—orders (net tons)[d]	.....	68,688	94,345	423,544	.....
Steel Ingots:					
Steel ingot production—monthly (gross tons)[e]	4,183,762	5,135,559	3,984,845	21,326,335	28,764,633
Steel ingot production—weekly average (gross tons)[e]	875,236	1,163,332	926,706	817,997	1,111,891
Steel ingot production—per cent of capacity[e]	74.46	88.82	70.75	62.45	84.89
Finished steel:					
Trackwork shipments (net tons)[e]	9,194	8,807	6,507	34,592	54,008
Fabricated shape orders (net tons)[g]	.....	118,842	128,520	750,671	.....
Fabricated shape shipments(net tons)[g]	.....	130,714	150,790	677,414	.....
Fabricated plate orders (net tons)[d]	.....	28,545	51,999	229,482	.....
U. S. Steel Corp. shipments (tons)[h]	1,268,550	1,304,039	886,065	5,031,350	7,614,274
Ohio River steel shipments (net tons)[i]	.....	102,200	109,455	465,621	.....
Fabricated Products:					
Automobile production, U. S. and Canada[k]	.....	540,357	470,887	2,596,356	.....
Construction contracts, 37 Eastern States[l]	$318,137,100	$244,112,800	$233,054,600	$1,237,731,000	$1,494,514,300
Steel barrel shipments (number)[d]	.....	786,607	702,132	3,845,761	.....
Steel furniture shipments (dollars)[d]	.....	$2,258,814	$1,470,195	$9,211,418	.....
Steel boiler orders (sq. ft.)[d]	.....	1,005,591	1,130,886	4,661,617	.....
Locomotive orders (number)[m]	22	14	24	122	228
Freight car orders (number)[m]	528	3,903	4,320	26,554	45,090
Machine tool index[n]	191.8	208.5	128.8	†124.5	†227.6
Foundry equipment index[o]	228.2	237.6	141.4	†146.9	†226.1
Foreign Trade:					
Total iron and steel imports (gross tons)[p]	.....	.....	59,910	319,145	.....
Imports of pig iron (gross tons)[p]	.....	.....	16,793	97,507	.....
Imports of all rolled steel (gross tons)[p]	.....	.....	15,715	123,768	.....
Total iron and steel exports (gross tons)[p]	.....	1,043,489	294,951	1,631,591	.....
Exports of all rolled steel (gross tons)[p]	.....	279,699	100,303	533,490	.....
Exports of finished steel (gross tons)[p]	.....	164,192	89,287	487,314	.....
Exports of scrap (gross tons)[p]	.....	630,671	186,696	1,050,273	.....
British production:					
British pig iron production (gross tons)[r]	699,300	696,300	644,100	3,749,100	4,011,000
British steel ingot production (gross tons)[r]	1,106,400	1,047,300	965,900	5,744,200	6,338,400
Non-ferrous Metals:					
Lead production (net tons)[s]	.....	40,192	38,818	224,015	.....
Lead shipments (net tons)[s]	.....	55,212	37,736	215,737	.....
Zinc production (net tons)[t]	50,526	55,012	44,947	253,732	280,590
Zinc shipments (net tons)[t]	50,219	55,201	41,654	252,487	319,464
Deliveries of tin (gross tons)[v]	6,645	6,425	7,795	37,020	44,435
Copper production, refined (net tons)[w]	85,016	95,265	60,562	356,180	487,465

* Preliminary. † Three months' average. ‡ Revised.

Source of figures: [a] Lake Superior Iron Ore Association; [b] Bureau of Mines; [c] THE IRON AGE; [d] Bureau of the Census; [e] American Iron and Steel Institute; [f] National Association of Flat-Rolled Steel Manufacturers; [g] American Institute of Steel Construction; [h] United States Steel Corp.; [i] United States Engineer, Pittsburgh; [k] When preliminary from Automobile Manufacturers Association—Final figures from Bureau of Census; [l] F. W. Dodge Corp.; [m] *Railway Age;* [n] National Machine Tool Builders Association; [o] Foundry Equipment Manufacturers Association; [p] Department of Commerce; [r] British Iron and Steel Federation; [s] American Bureau of Metal Statistics; [t] American Zinc Institute, Inc.; [v] New York Commodities Exchange; [w] Copper Institute.



The Iron Age Weekly Index of Capital Goods Activity

(1925-27 = 100)

Last week	97.7	Same week 1934	48.6
Preceding week	94.4	Same week 1933	64.0
Same week last month	88.6	Same week 1932	35.2
Same week 1936	79.9	Same week 1931	63.7
Same week 1935	59.0	Same week 1930	86.9
Same week 1929	129.0		

ACTIVITY in the production and distribution of durable goods showed a gain of 3.3 points for the week, according to THE IRON AGE seasonally adjusted index. The rise is attributable principally to a sharp rise in steel production upon resumption of activity in struck mills and as a result of the natural rebound from the holiday week. For the same reason, the production index at Pittsburgh showed a sharp gain. Heavy construction volume was off, but showed a gain on the basis of the 13-week moving average used in the composite index. Automotive weekly production rebounded after the holiday week, but showed a decline on a daily basis.

Carloadings of lumber products showed the biggest drop, but the figure is for the week ended July 10 and the loss is much smaller when the short, holiday week is allowed for.

	Latest Week	Change from Preceding Week
Steel production (per cent of capacity)	83.0	+13.0
Automobile production (number of cars and trucks)	115,380	+15,349
Railroad loadings of forest products (number of cars)	32,899	—8,824
Pittsburgh industrial production and shipments (index number)	105.7	+2.0
Construction contracts awarded (total value)	$59,437,000	—$7,998,000

Components of The Index (1) Steel Ingot Production Rate, from THE IRON AGE; (2) Automobile Production, from Ward's Automotive Reports; (3) Revenue Freight Carloadings of Forest Products, from Association of American Railroads; (4) Industrial Productive Activity in Pittsburgh District, from Bureau of Business Research of University of Pittsburgh; (5) Heavy Construction Contract Awards, from *Engineering News-Record*.

WASHINGTON. . . . . .

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By L. W. MOFFETT

Resident Washington Editor, The Iron Age

o o o

. . . Senator Robinson was not always in accord with New Deal; his recent warning against mounting Government debt recalled by his death.

o o o

. . . Labor Board files complaint against Republic Steel Corp. for alleged discrimination against members of the SWOC; hearings to begin this week.

o o o

. . . Case against Post Office Department for permitting strikers to interfere with mails not yet closed; Senator Bridges pushing for some action.

WASHINGTON, July 20.—Reports have it that the late Senator Joseph T. Robinson did not share the New Deal's zeal for the Court packing abomination. Party loyalty, as the lamented majority leader saw it, is said to have prompted him to take up the gage of battle and fight fiercely for a cause which opponents do not think was worthy of so worthy a man. But whether false or true that Senator Robinson's mind and heart were in conflict with each other on the Court issue and whether or not his life was cut short by reason of the tumultuous strife into which he threw all his great strength, the fact remains that fundamentally he was an old-line Democrat.

The strange doctrines of the New Deal which he was called upon to espouse are commonly believed to have shocked him as they have shocked the country. More than once, it is said, he found it most difficult as majority leader to champion them. On a recent occasion, however, he found it impossible to swallow a piece of New Deal legislation. It concerned the WPA and the Administration's insensate spending policy. Senator Robinson turned leadership on this legislation over to his assistant leader, Senator Barkley of Kentucky, and bitterly attacked the $1,500,000,000 measure. He warned the Administration of the danger of national bankruptcy unless a halt is called upon mad spending—advice that of course was disregarded. Conserving the people's money, balancing the budget and other prudent practices still remain in the stage of lip service together with a feint of cheese-paring expenditures, supposedly to the tune of 10 per cent.

Worried About Federal Debt

So what would be more fitting to revere the memory of Senator Robinson than to heed his warning against continuance of prodigious Government expenditures? The warning was sounded in unmistakable terms.

"Gentlemen may laugh about a $36,000,000,000 debt hanging over the Treasury of the United States if they wish to, but with all my refined and expanded sense of humor I find it impossible to laugh about such a thing," the late majority leader told the Senate. "I recall the time when our armies came out of the bloodiest and most cruel war that was ever waged on this earth to find a debt far below the amount the Government now owes and we worried about it then.

"But now nobody seems to worry about the debt. We spend and we spend, and we spend, and there are some who vote for all appropriations and against all taxes. I do not name anyone; sometimes I have been inclined to get into that class myself. But the point I am making is that we cannot go on forever doing it.

"I do not say that even a $36,000,000,000 debt, taking into consideration all the circumstances, endangers the credit of the United States; but I do say that in the time of prosperity we ought to begin to put our house in order.

"Let me ask what would happen if another depression, such as that which began in 1929 or 1930, and which has continued until recently, should strike the people of the United States and their affairs next year or the year following?

"Of course we do not look for it. Of course we hope it will not occur. But there are some who say that we will have a recession in business and industry.

"What if our revenues from incomes should fall off? What if the sources of taxation available for

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the United States should dry up to an extent, as they did dry up in 1930 and in the years which immediately followed that year?

"We would find ourselves in a situation which would be terrible; and as representatives of the whole people, expressing full appreciation for the liberality of the Government, we owe an obligation to the Government, to those who live now and to those who will come after, to make provision for the needy living, for those who cannot get along without assistance; but we also owe the generations to come a measure of duty to safeguard them against an unreasonable and an excessive burden which may bring back upon them the sorrows, the travails, and the woes we have so recently experienced."

$7,000,000,000 at This Session

Already the present session of Congress has appropriated the incomprehensible sum of $7,000,000,000 and a large deficiency appropriation bill is yet to be passed.

Now it is proposed to feed insatiable bureaucracy with a wage-hour bill, which, it is estimated, will add 100,000 to the already grotesquely ponderous Federal payrolls, ready to heckle even the vast bulk of industry whose wages are far above the bill's requirements and whose work-week are well within such requirements. Obviously the act will impose heavier costs on industry for administration, such as setting up endless advisory committees, keeping records, etc., etc. Even that expensive old flop, the Blue Eagle, directly employed only about 4500 persons while about 75,000 were directly engaged by code authorities, according to Senator H. Styles Bridges, Republican of New Hampshire. The NRA cost to the nation in direct expenditures by the Government and overhead expenditures by industry was estimated at between $250,000,000 and $300,000,000. The wage-hour administration will make these figures look like small change. Raids on the Treasury of course are always threatened by almost every Government agency once it is set up. Money and more money to expand its bureaucratic activities and to add to its payrolls becomes a day-in and day-out chant. Agencies galore are indulging in the ceaseless droning. The list is as long as a clothes line. Among them are the Federal Trade Commission, which wants to broaden its moral guardianship of the conduct to reach every mortal, from babyhood to the grave; the self-glorifying National Bituminous Coal Commission, which, not satisfied with efforts to regiment the entire bituminous coal, whether interstate or intrastate, captive or commercial, now reaches into the Bureau of Mines and takes over its bituminous statistical staff, while bills are introduced for a commission to control anthracite coal, even though it is produced in only one State, which ought to be capable of managing its own affairs; and the great "peace-making" body, the CIO-dominated National Labor Relations Board, which, under the beneficent aegis of John L. Lewis, wants to fasten its own one-sided labor policy on all industry, is seeking $1,500,000 additional funds to expand its ex parte activities.

In view of this eternal demand by the multitude of Government agencies for more of the taxpayers' money, down to the thinnest dime, cries of acting "in the public interest" have a decidedly hollow sound.

It's definitely time that taxpayers demand a halt on huge Government expenditures and their accompanying political patronage if

dangers about which Senator Robinson warned are to be avoided.

Coal Commission May Absorb Bureau of Mines

HAVING moved in to cover steel-owned and other captive coal and mines shipping coal in intrastate commerce, the price-fixing National Bituminous Coal Commission has announced plans to grab the bituminous statistical staff of the Bureau of Mines. Unfortunately the coal commission is authorized by the Guffey Act to do this. Moreover, it can take over the market reporting of the Bureau of Mines. Possibly it may seek power to absorb the entire bureau.

The "transfer," as the commission's announcement describes the deal, was made with the "approval of the Department of Interior." Harold L. Ickes, who never has had any real affection for it since Congress put the board under his wing, it is suspected, gave approval under protest.

Recently the coal board tried to get offices in Ickes' new streamlined palace which houses the department. Ickes turned the board down. Unaccustomed as it is to the word "no," the board stepped out and rented an entire new office building for its own use in "Washington's financial district," with the taxpayers footing the bill.

"The commission proposes to improve the bituminous information service built up in the Bureau of Mines," according to its more or less modest announcement. The board's record does not justify such self-flattery. On the contrary, fear is felt that it will fall far short of the standard set by the highly efficient Bureau of Mines with its enviable reputation. The bureau has served the mining, steel and other industries faithfully and competently and it is a source of real regret that it is to be deprived of any of its services, particularly when they are to be taken over by an organization that does not have the confidence of industry to such a degree as that which is deservedly enjoyed by the bureau.

It is to be hoped no further raids will be made on the bureau. It is particularly desirable that it should not be deprived of its investigational and safety work. Still the passion the coal board has for "studying" leads to apprehension that it may seek ultimately to absorb the entire bureau. The board has been studying this and that practically ever since it took office over two years ago. Especially did it study hard after the Supreme Court gave the coal law the axe and jeopardized the five $10,000 a year jobs. It dug out some minor sections of the law already threadbare from study, got a ruling from the Comptroller General that these sections were immune from the Court's action, and proceeded to do some high-powered studying and succeeded in continuing its existence until a new law was passed.

The Lewis Drive to Organize Government Employees

THE unbounded ambition of John L. Lewis to be the exclusive dictator of labor is reflected in his campaign to organize 2,000,000 Federal, State, county and municipal employees. Whether or not this is just a stuffed front to continue agitation and keep the dues rolling in for CIO and a cover up of defeat met at the hands of steel, the "drive" has aroused considerable comment. In some quarters it has created alarm. Lewis has said that of course the CIO would not strike against the Government. President Roosevelt even has taken a sideswipe at the effort, though again as on prior occasions he has been careful not to tread too heavily on

Lewis's toes. The President, heading the universe's greatest employment agency, with 840,000 engaged in the civil branches of the Federal Government, has said they have a right to belong to a union or to unions. But he said they have no right to strike nor can they bargain collectively with the Government. They cannot ask the Government to sign contracts. Rates of pay for Federal workers are fixed by Congress, it was pointed out. So if the CIO or any other organization wants to make demands they must go to Congress. They can't strike. They can't bargain collectively. Civil Service rules cover these matters, so it was stated, believe it or not. The principles are sound. Yet they run entirely contrary to the principles of the National Labor Relations Act which is so ardently supported by the Administration. No doubt there is a difference between application of the principles as between the Government and private industry. Yet the official encouragement given CIO and its rampant, irresponsible conduct no doubt accounts for its notion that it can dictate labor policies to Federal, State, county and municipal governments. But it is a good bet that strikes of Government employees are something not to get excited about.

Federal Control of Soft Coal Proposed

WASHINGTON, July 20.—With coditis starting its bureaucratic rage again in Washington efforts are being made to establish Federal control of the anthracite coal industry. At present the bituminous coal industry is regimented by the National Bituminous Coal Commission. Representative Boland, and Senator Guffey, Democrats of Pennsylvania, have introduced identical bills providing for Federal control of the anthracite industry. The bills provide for a tax of 1 cent a ton and an additional tax of 19½ per cent of the sales price to be rebated to code members. The latter would be in the form of a penalty tax for producers who do not adhere to code regulations. Because anthracite coal is produced only in Pennsylvania the point has been made that the industry is not subject to Federal regulation. However, this has not deterred efforts to sweep the industry under the wings of still another alphabetical soup agency. There does not seem any prospect that the proposed legislation will be enacted at this session of Congress if at all.

Senator Bridges Still Pushing Case Against the Post Office Department

WASHINGTON, July 20.—Possibility for further Congressional action against the Post Office Department for its refusal to deliver food and clothing to strike-affected steel plants was seen by some observers as a result of a report filed with the Senate on Thursday by Senator H. Styles Bridges, of New Hampshire, charging that the department was "usurping the function of Congress" in "legislating" food and clothing packages as abnormal or unusual mail and refusing their delivery.

Bridges, former Governor of New Hampshire and leader in the Senate fight that launched the initial inquiry on mail interference charges, told the Senate in a minority report from the Post Office Committee that nowhere in the postal laws is any mail classified as unusual or abnormal and that existing law does not give the department the right to make any such classification as a basis for refusing to accept or deliver mail. Bridges reported that legislation is necessary if future deliveries are to be safeguarded against action by "whims" under "presumed authority" of the postal regulations.

The New Hampshire Senator directed his attack particularly against the Post Office Department's claim that its action is based on existing law. In many respects, his view coincides with the view taken by Republic Steel Corp. in its pending court proceedings which seek a writ of mandamus against the Post Office Department. The law cited by the department as a basis for its contentions says:

"Whenever, in the opinion of the Postmaster General, the postal service cannot be safely continued, the revenues collected, or the laws maintained on any post road, he may discontinue the service on such road or any part thereof until the same can be safely restored."

This law, Bridges said in his report, cannot possibly be construed as applicable where the Post Office Department makes some deliveries of mail on a post road at all times and refuses to make others and at no time discontinues all service. He added:

"That the Postmaster General, in making a distinction between the type of mail matter rather than the place of delivery as a ground for his refusal to perform the services of his department is in fact legislating and thus usurping the function of Congress."

Law Enacted in 1862

The law cited by the department and quoted above, it has been learned, was enacted in 1862 and was passed for the specific purpose of authorizing the Post Office Department to discontinue services in States which had seceded from the Union. Authoritative quarters say that not since the days of the war between the States has it ever been invoked until during the recent steel strike.

Bridges' version of the facts brought out by the recent Post Office Committee hearings as outlined in his report show: (1) that the Post Office Department has taken sides in the controversy by an "unprecedented departure from its activities as a transportation system"; (2) that the department could have safely delivered packages to the plants despite striker interference by "calling upon other departments of the Government" for protection; (3) that there had been "wholesale" interference with mail deliveries by CIO pickets with carriers threatened and mail trucks blocked; and (4) that there had been substantial evidence introduced to show that agreements as to acceptable packages had been made between postal officials and "outside persons" and that these persons had been permitted to "censor the U. S. mails."

While recognizing that indictments have been returned in Cleveland against nine CIO strikers on censorship and mail interference charges, Bridges said that "the interferences were so numerous and on such a large scale as to constitute a challenge to the Post Office Department and to the authority of the United States and should be the subject of further investigation." Only in that way, he declared, can the Congress remedy the loss of prestige suffered by the Post Office Department as a result of CIO interference and Government negligence.

While some observers were inclined to discount the importance of the report since Bridges was the only member of the Post Office Committee to sign it, it was pointed out that the serious nature of the charges might make further investigation difficult to avoid. Definitely, it places the majority of the committee in the difficult

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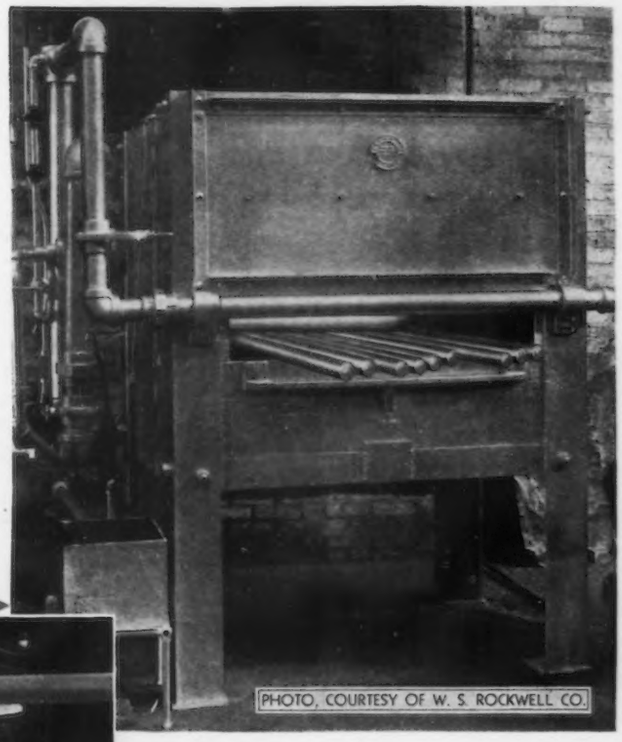
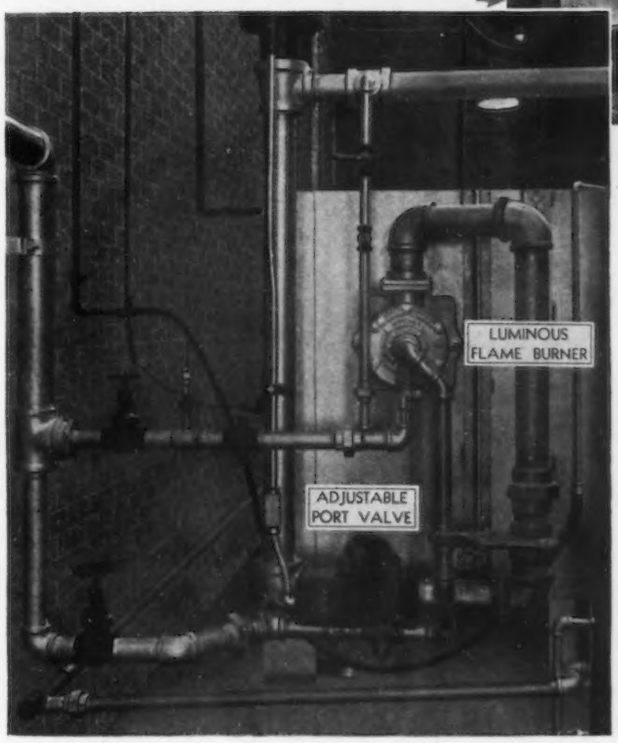


PHOTO, COURTESY OF W. S. ROCKWELL CO.

FRONT VIEW →



← SIDE VIEW

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position of having voted to drop a matter which necessitates, according to Bridges, Congressional clarification of the postal laws to avoid future interpretations which may prevent the mail from going through.

Wants Farley to Testify

The Senator has been insistent from the start that Postmaster General Farley be summoned before the committee. He told THE IRON AGE that each day's mail brings additional complaints against CIO tactics and mail interference charges and that the material, together with additional evidence, will be submitted to the Senate as a basis for further action.

Senator McKellar, Democrat, of Tennessee, chairman of the Senate Post Office Committee, submitted a majority report several days ahead of the Bridges findings. McKellar, whitewashing the Post Office Department, gave 17 reasons why the department, breaking from tradition, did not let the mail go through.

Reason No. 8 in his report said: "That the pickets not only threatened to interfere with the delivery of mail but on several occasions did interfere with the prompt delivery of normal mail." Other sections of his report likewise admitted many of the charges cited by Bridges, but it concluded with this statement: "That the said matter being in the courts, your committee is of the opinion that no further investigation should be made by this committee or any other committee of the Senate."

McKellar's reference to "said matter being in the courts" is taken to mean that he hopes the court's action in the Republic suit will enable the Senate, at least the Post Office Committee, to wash its hands of the whole affair.

Labor Board Promises Bethlehem Election

WASHINGTON, July 20.—Affecting concern that the situation "is costing everybody money," Attorney-General Charles J. Margiotti of Pennsylvania sped to Washington two weeks ago to see if he could expedite investigation of charges made against the Bethlehem Steel Co. by the Steel Workers Organizing Committee.

Mr. Margiotti first talked with Attorney-General Cummings and next with members of the National Labor Relations Board, after which Margiotti said the NLRB promised to hold an employees' election soon to determine whether the SWOC had a majority of the 15,000 workers at the Cambria plant of the Bethlehem company in Johnstown, Pa. Without making clear its nature, Margiotti said cooperation was offered by the NLRB in expediting investigation of the SWOC charges.

Showing that life is just one complaint after another for the NLRB, its confab with Margiotti was under full steam when it received a petition from SWOC making charges of unfair labor practices against the Youngstown Sheet & Tube Co.

Lewis Foundry Enlarges Capacity

THE Lewis Foundry & Machine Co., Pittsburgh, subsidiary of the Blaw-Knox Co., has enlarged its manufacturing facilities and increased its total floor space approximately 50 per cent. Additional modern machinery being installed includes roll grinders, boring mills, and gear cutting machinery. There is also a powdered coal fuel system, complete with automatic conveyer for carrying coal from storage bins to pulverizers. A separate power sub-station has been erected for electrical production in the event of an unexpected power shut-off.

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OPERATION:
Precision grinding diameters, 15/16", 5/8" and 3/4" on feed shaft.

MACHINE:
Cincinnati 6 x 30 Plain Hydraulic Grinding Machine.

MATERIAL:
Chrome nickel steel

LIMITS:
Minus .001" on 15/16" diam.
Minus .0015" on 5/8" diam.
Minus .002" on 3/4" diam.

PRODUCTION:
10 pieces per hour—three operations on each piece.

METHOD EMPLOYED:
Plunge-cut and traverse grinding.

COOLANT:
One part SUNOCO to 20 parts water.

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NEW grinding machines, flexible in operation and designed to maintain closer tolerances — plus operator interest in greater production per work hour — depend on the grinding coolant for efficient production.

SUNOCO is the grinding coolant to assure efficient production consistently. In the grinding operation it has made possible closer limits of accuracy, faster stock removal without increasing wheel wear, and yet has reduced to a minimum the danger of burning the work.

For mirror finishes, greater precision, and increased production per abrasive unit specify the modern grinding fluid developed to meet every grinding requirement—SUNOCO Emulsifying Cutting Oil.

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Trade Commission Makes Important Decisions Under Robinson-Patman Act

WASHINGTON, July 20.—Price discriminations that do not represent differences in cost of manufacture and payment of brokerage commissions which do not represent services rendered have come under the ban of the Federal Trade Commission. At the same time it has given a clean bill of health to the practice of discriminating in price where it is held the difference in cost of manufacture justifies it and to maintenance of price differentials where it is held they do not tend to create monopoly or injure competition.

These principles were laid down by the FTC in four Robinson-Patman cases action on which was announced yesterday. In two cases orders to cease and desist were entered and are the first such orders entered under the Robinson-Patman law. The two other cases were dismissed. In passing on these cases the FTC has charted its course as to principles of the new law. Undoubtedly tests of the law will reach the Supreme Court.

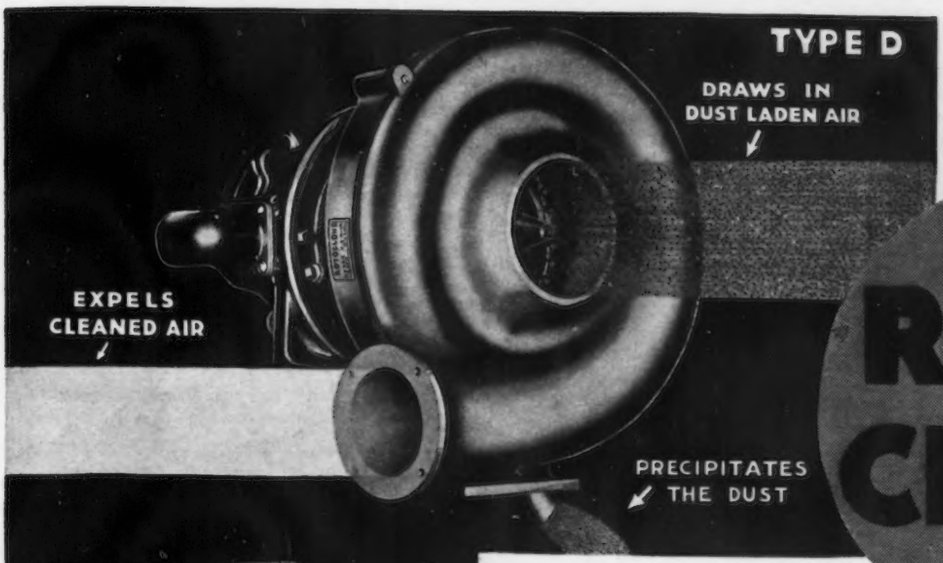
An order to cease and desist was entered against the Biddle Purchasing Co., New York City, and six sellers and six buyers of foodstuffs. The sellers pay brokerage fees to the Biddle company, an intermediary and market information agency, which turns over the brokerage fees in full to the buyers and receives a monthly fixed fee for its market service. It is reported that this case will be carried to the Supreme Court.

The other order to cease and desist was entered against the Hollywood Hat Co., which sells women's hats almost wholly through jobbers and syndicate purchasers representing retailers and its largest customer is a retail buying syndicate for 200 millinery department stores located throughout the United States. The commission held that the lower price of $3 to $6 a dozen hats granted to the buyers than allowed competing customers was not accounted for by difference in cost of manufacture, sale or delivery or any other exception provided in the act.

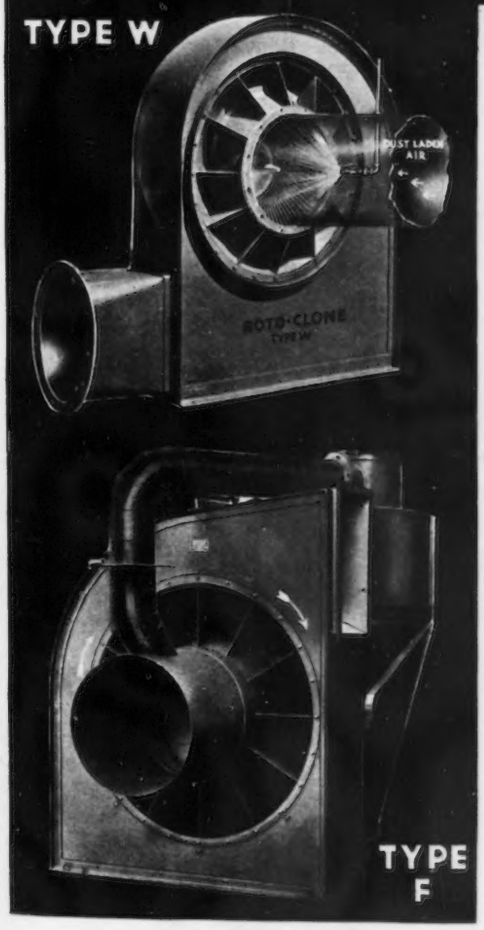
On the other hand the difference in costs of manufacture was found to justify dismissal of cases against Bird & Son, Inc., and the Bird Floor Covering Sales Corp., both of East Walpole, Mass., and Montgomery Ward & Co., Inc., Chicago. The commission found that a controlling fact in the disposition of the case was that the cost of selling hard-surfaced felt base floor covering to Montgomery Ward was much less than to ordinary retailers. Consequently, the FTC held that the difference in price came within the terms of a proviso of the Robinson-Patman Act specifically permitting price differentials that make only due allowance for differences in the cost of selling.

The FTC dismissed its complaint against the Kraft-Phenix Cheese Corp., Chicago. The commission, though claiming it had jurisdiction over the pricing policies of the company in its sales to retailers regarding which it had been challenged, held that the price differentials maintained did not tend to create a monopoly nor to lessen or injure competition between the respondent and its competitors. The commission also held that these price differentials did not tend to injure competition among retailers reselling cheese products.

In the Biddle case the order requires the sellers to discontinue paying to the Biddle Purchasing Co. any commissions on sales of



ROTO-CLONE



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Type D ROTO-CLONE with cast iron housing, designed for air volumes up to 20,000 c.f.m. Widely used in connection with dust collecting systems for grinding, cutting, broaching and polishing operations; for crushers, pulverizers, elevators and belt transfer points; in processing, conveying, mixing and applying material in granular or powdered form.

Type F ROTO-CLONE of steel plate construction, designed for capacities from 15,000 to 50,000 c.f.m. Applicable to stack gases for the elimination of cinders and fly ash; large rotary dryers and coolers, coal, cleaning, and similar operations involving large air volumes and heavy dust concentrations.

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commodities as brokerage, or as an allowance in lieu thereof, which commission is intended to be paid over by Biddle to any purchaser of such commodities. The buyers are ordered to cease accepting from the Biddle company any commission which has been paid to it as brokerage, or as an allowance in lieu thereof, by a seller of commodities on sales made by such seller to the buyers.

Labor Board Files Complaint Against Republic Steel Corp.

WASHINGTON, July 20.—Reflecting bitter feeling by a supposedly quasi-judicial government body, the National Labor Relations Board CIO-inspired complaint against the Republic Steel Corp. bears the earmarks of a retaliatory measure designed to punish the company because it frustrated the lawless efforts of the SWOC to coerce unionization of the company employees at its Youngstown, Warren, Niles, Canton, Massillon and Cleveland plants. Further reflecting animus toward the company, the NLRB, always eager to issue a complaint at the slightest nod from John L. Lewis, gave scant notice of a hearing. Announcement of the complaint was made last Friday and hearings set to begin in Washington tomorrow.

Based on board precedent, it is strongly suspected that the hearings will take on the character of a persecution with rulings as to admissible testimony made favorable to a long array of union witnesses and against the company, with the result that the case probably will be carried to the courts. The company has vigorously denied the charges and declared its confidence that a "fair, impartial and complete hearing will establish the falsity of these claims."

Even for the NLRB the complaint is addressed in unusually extravagant terms. Bias and lack of restraint are given full sway. Issued after a "field examination" by the board, the complaint goes the whole gamut. It alleges, in complete accordance with SWOC charges, "discrimination against the employees, the lockout of some employees and the use of threats to compel others to remain inside its plants, violence against union organizers, and a considerable increase of its (company's) police force, the maintenance of extensive arsenals, interference with the right to peaceful picketing, the stimulation of a back-to-work movement and the domination at five plants of company labor organizations." SWOC strikes at the affected Ohio plants were begun May 26. The "sudden cessation" of operations May 5 at the tin plate mill in the Canton plant is described as a lockout and the refusal to reinstate almost all of the employees there is considered by the board as an unfair act to coerce company employees. The complaint alleges that a considerable number of employees at Warren remained at their jobs within the plant and were threatened with discharge and loss of seniority rights and vacation privileges, if they left the plant and joined the employees who went on strike. "Collusion" with "dominated labor organizations," brutality of an increased police force, maintenance of an "extensive arsenal" and similar charges are scattered throughout the complaint centering about strikes characterized by striker dynamiting of railroad tracks, censorship and interference with the mails, and clubbings and beatings. This, however, seems to be the board's conception of peaceful picketing. According to the board, the company itself by some inexplicable means still shoots and throws dangerous things at strikers, for the final paragraph in the board handout said:

"The company at all six plants has interfered with the right of its employees peacefully to picket and still does intimidate its employees by shooting at them and by throwing bolts and other dangerous missiles at them."

"Check-Off" Illegal Under Labor Act Is Opinion of Association Counsel

COLLECTING union labor dues under the so-called "check-off" system is illegal under the National Labor Relations Act in the belief of David R. Clarke, general counsel for the Illinois Manufacturers' Association, who spoke at a luncheon meeting of that organization last week in Chicago.

He based his opinion upon section 8 which declares it to be an unfair labor practice for an employer to contribute financial "or other support" to any labor organization.

"It appears quite plain," said Mr. Clarke, "that the collection and transmission by the employer of union dues under the so-called 'check-off' system is clearly in violation of the National Labor Relations Act, in its designation as an unfair labor practice an employer contributing financial or other support to a labor organization.

"I also believe that it is against the law to contribute advertising for programs for entertainments or other union activities unless an employer feels that he is deriving some substantial advertising value from the contribution."

Mr. Clarke warned against interference with or coercion of employees who wish to join labor unions. He advised employers to obey the law and to obtain the best legal advice possible when they were in doubt as to the construction or interpretation of its provisions. He reminded his audience that the National Labor Relations Board is not a court and that the courts alone could authoritatively construe and interpret the provisions of the act.

The Labor Board, he asserted, was not set up as an impartial court of justice but merely as a finder of facts. He stated that, in his judgment, the act did not cut off freedom of speech by employers with employees in discussion of employee relations matters.

"An employer in my opinion," said Mr. Clarke, "has just as much right to warn his employees of the consequences of joining certain labor unions as a parent has to warn his child against a red hot stove or as the President of the United States has to warn Government employees of the evils and dangers of speculation.

"An employer is not barred from pointing out the unsound, coercive or selfish motives of labor organizers where he believes they exist. He is not barred from telling his employees of the responsibilties they incur in signing membership applications which involve their subscription to union constitutions and by-laws. Few employees who sign membership cards know what it involves."

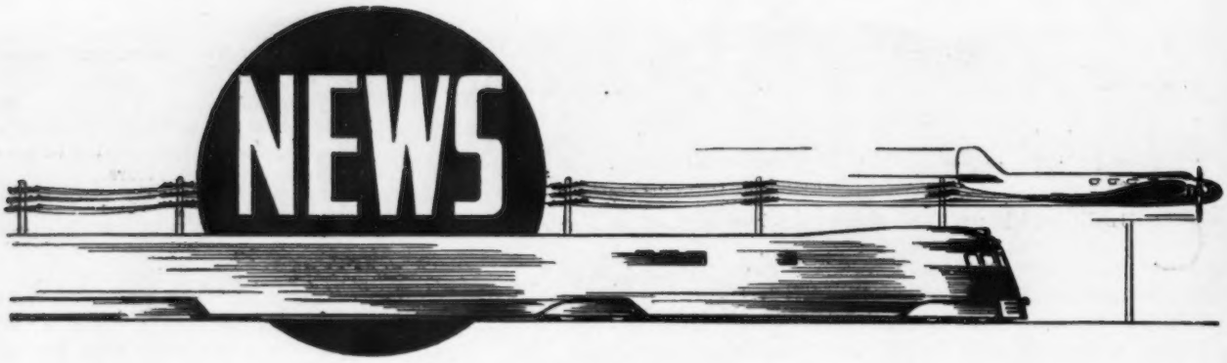
Mr. Clarke said that union leaders are insistent upon employers signing agreements with the unions for the reason that it gives them a powerful instrument in organizing employees and in securing their signatures to union membership applications.

"When an employer signs a labor agreement with a union," he remarked, "an employee may be justified in thinking that his employer has 'gone union,' and in feeling that he has no other practical alternative than to join that union himself regardless of his own independent wishes in the matter."

Wheeling Steel Plan Voted by Stockholders

STOCKHOLDERS of the Wheeling Steel Corp. have approved the plan of recapitalization recommended to them by the board of directors last month. The plan provides for the elimination of the present $9,157,128 accumulated dividends on the 6 per cent preferred stock through voluntary exchanges of old 6 per cent preferred stock at a rate of one share of new $5 prior preferred stock and ½ share of common stock for each share of old preferred.

Approximately 73 per cent of both the preferred and common stock of the corporation was voted in favor of the plan as against only 0.5 per cent of the preferred stock and 1.2 per cent of the common stock opposed to the plan.



Labor's Share of Steel Dollar In 1936 Equal to 1929

LABOR'S share of the steel industry's dollar in 1936 was substantially at the 1929 level despite the fact that both the volume and net earnings of the industry last year were well below the predepression figures, according to a study made by the American Iron and Steel Institute. The study showed that 38¼c. out of each dollar of the industry's gross revenues last year went into the pay envelopes of its employees, compared with 38½c. in 1929.

Dividend payments to steel stockholders amounted to 4½c. out of each sales dollar received in 1936, while tax payments to Federal, state and local tax collectors consumed another 4½c.

Depreciation of plants and machinery and depletion of raw material reserves accounted for 5¾c. out of every steel sales dollar. Interest payments on outstanding bonds represented 1½c.

Costs of raw materials purchased and all other expenses incurred by the companies during 1936 amounted to 43½c. out of each dollar, leaving a balance of two cents to be added to the surplus of the industry.

Comparison of the distribution of the steel dollar in 1936 with 1929 revealed that, although in both years substantially the same proportion of the steel dollar went into payrolls, stockholders' dividends in 1936 were only 65 per cent as much of the steel dollar as in 1929, when they amounted to 7c. out of each dollar received by the industry.

Only 21 per cent as much of the steel dollar was added to surplus last year as in 1929. About 9½c. out of each dollar received in that year went into the reserves which were used so extensively during the depression to offset the losses sustained by members of the industry during four successive years.

As compared with the total of 38¼c. which the steel industry paid out in wages during 1936 for each dollar received, an average of 23c. was paid out of the gross sales dollar received by the group of 30 representative companies in several industries which comprise the Dow-Jones industrial averages.

Equipment Ordered for New Irvin Works

CARNEGIE-ILLINOIS STEEL CORP. has let contracts for 50 overhead traveling cranes varying in capacity from 5 to 60 tons, for installation in its Irvin works, the orders being divided among the following concerns: Harnischfeger Sales Corp., Milwaukee; Cleveland Crane & Engineering Co., Cleveland; Alliance Machine Co., Alliance, Ohio; and Shaw-Box Crane & Hoist Co., Muskegon, Mich.

Additional cranes of individual type for special purposes at the company's Edgar Thomson works will be supplied by the Morgan Engineering Co. and the Alliance Machine Co., both of Alliance, Ohio. Four of these cranes, having a capacity of 250 tons, will be ladle cranes. Two 200-ton cranes have been ordered for stripping ingot molds, also for the Edgar Thomson works.

Contracts for certain electrical

NEWS AND MARKET INDEX

STEP OUT - *Cut Waste Again!*

An Elwell-Parker System handling, tiering, reclaiming loads in a large storage and warehousing project. Note different types of Trucks performing a variety of load-handling operations. The System includes correct types and sizes of Truck equipment, each provided with suitable attachments for doing your work at lowest cost.*

THIS is no day for industry to pass over its materials-handling processes with a complacent glance. In an alarming proportion of manufacturing plants today, prevailing methods are so inadequate, obsolete and wasteful that profits already have been reduced to a dangerously narrow margin.

To step out—to cut waste *again*—means keeping alert to the cost of each process in your materials handling. It means creating the utmost savings that Elwell-Parker Truck equipment can establish and *maintain* for you: and of course it means calling in an experienced Elwell-Parker Representative to consult with one of your own men.

An Elwell-Parker System* (see illustration above) will tie all your load-moving operations into a single efficient, low-cost flow. The Elwell-Parker Electric Co., 4225 St. Clair Ave., Cleveland, Ohio.

New Type **ELWELL·PARKER** *Trucks*

ESTABLISHED 1893 • BUILDING POWER INDUSTRIAL TRUCKS SINCE 1906

equipment for the Irvin plant have been let to the General Electric Co., Schenectady, Westinghouse Electric & Mfg. Co., East Pittsburgh, and Allis-Chalmers, Inc., Milwaukee. The sheet mill incidentally will have an installed electric motor horsepower of 300,000 upon completion.

Amsler-Morton Co., Pittsburgh, will furnish 16 soaking pits to be installed at the Edgar Thomson works for operation in connection with the slabbing mill which will supply raw material to the Irvin works. Each pit will have a capacity of six to eight slab ingots varying in weight from 10 to 17 tons each. This particular type of soaking pit is a new development and was described in detail in THE IRON AGE, issue of December 3, 1936.

Rust Furnace Co., Pittsburgh, has been awarded a contract by the Carnegie-Illinois Steel Corp. for three slab heating furnaces for the Irvin works. Each furnace will have a capacity to heat 60 gross tons of slabs an hour raising them from cold to rolling temperatures of 2300 deg. F. The furnaces will burn coke oven gas and will be supplied complete with platforms, stacks, stack flues, and automatic central equipment.

Weirton to Spend $1,500,000 on Mines

NEW equipment is being installed at the Isabella, Pa., mine of the Weirton Steel Co. in a program that will result in the mechanization of a number of operations, according to T. E. Millsop, president.

The approximate cost of the improvement will be $1,500,000 and it is expected to be completed in September. The installation will increase operating efficiency and permit an accurate control of quality, Mr. Millsop said. The new equipment will be housed in a building, now under construction, near the mine mouth. Included will be coal washing machinery, the power plant for a conveyer, screens in various sizes, and drying equipment.

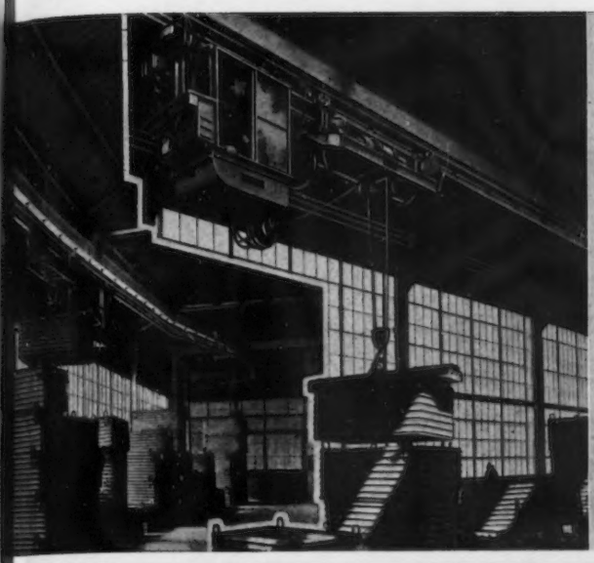
Forty-eight inch conveyer belts will carry coal from the mine to the new building for processing. Other conveyer lines of the same size will load processed coal on barges or cars for shipment to the steel plant at Weirton.

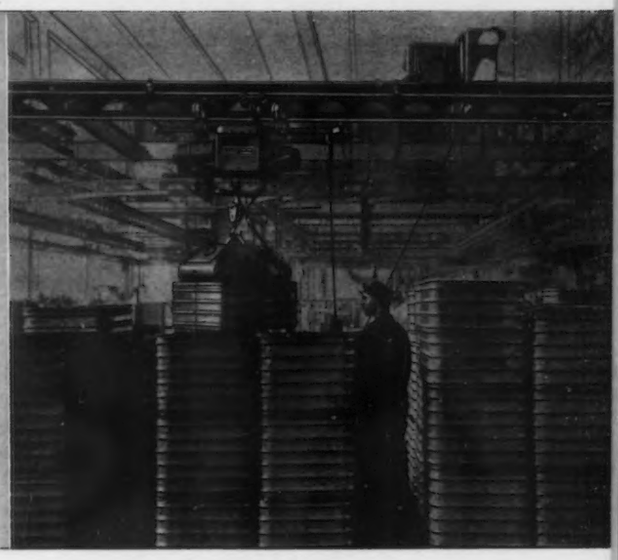
Japanese to Control Imports of Scrap

TOKYO (*Special Correspondence*).—Japanese importers of scrap iron have agreed to voluntary control of imports. The importers in question are Nihon Seitetsu (Japan Iron Mfg. Co.) Japan Steel Tubing, Kawasaki Dockyard, Tsurumi Shipbuilding, Kobé Steel Works and the Kokura Iron Works. The object of the agreement is to make the import amount as large as possible and the import price as cheap as possible. All buyers of foreign scrap iron must handle their orders, through the central office of the traders.

The *Nichi Nichi* learns from Singapore that the Government of the Malay Federated States has suddenly placed an export ban on scrap iron. The Government has resorted to this step to counteract the soaring of scrap iron quotations, due to heavy purchases by Japanese traders. The quotations rose from $18 per ton in 1936 to $40 recently.

CLEVELAND TRAMRAIL MATERIALS HANDLING EQUIPMENT





CLEVELAND TRAMRAIL

Consult your 'phone directory under Cleveland Tramrail

Overhead Materials Handling via Cleveland Tramrail
Combines
SPEED with SAFETY
in Handling Materials or Product in Tote Boxes to and from the Production line, also for Storing, Weighing and Shipping.

● Cleveland Tramrail is overhead, it uses the ceiling, it takes Floor Repairs Out of Maintenance.

CLEVELAND ALL WELDED CRANES FOR EVERY INDUSTRY

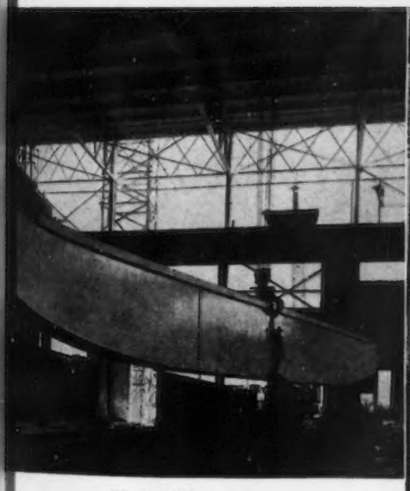


Photo 2101
Placing one of the 37 ton Girders.

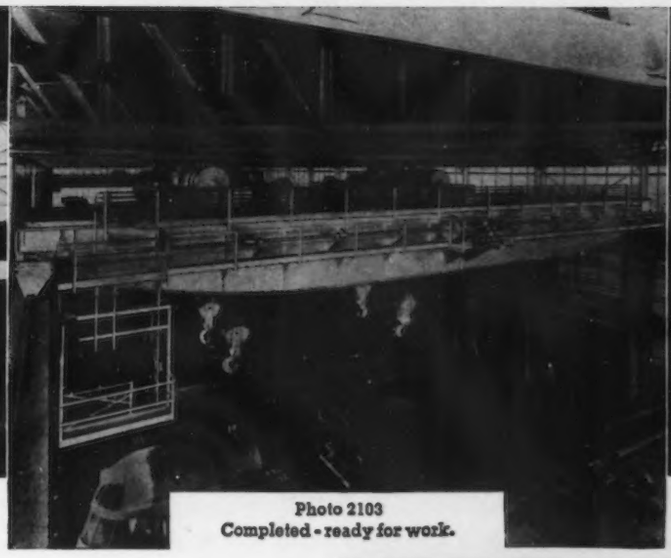


Photo 2103
Completed - ready for work.

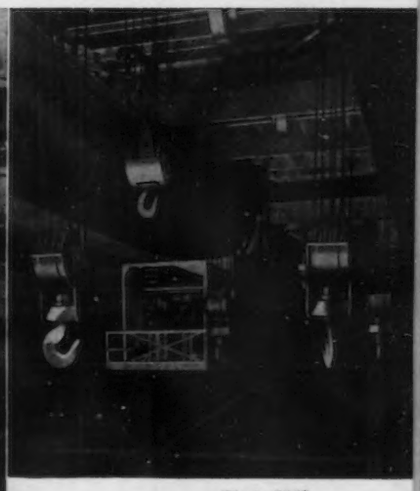


Photo 2149
Looking up at the hooks.

● A 200 ton Cleveland Crane "All Welded." Span 100 feet — Total Weight 390,000 pounds: two 100 ton trolleys with double hooks.

CLEVELAND CRANES

NEW YORK · DETROIT PITTSBURG · CHICAGO

THE CLEVELAND CRANE & ENGINEERING CO.

1115 Depot St.

WICKLIFFE OHIO

Union Sells Carbide Die Business to Carboloy

UNION WIRE DIE CORP., engaged in the manufacture and sale of Widia cemented carbide drawing and extrusion dies, has sold, to Carboloy Company, Inc., Detroit, Mich., its entire assets and interests in the cemented carbide business, effective July 15.

The new organization will combine the entire research, manufacturing, sales and service facilities of these two largest cemented carbide suppliers in the United States. Both "Unwidies" (Widia cemented carbide dies) and Carboloy cemented carbide dies will continue to be supplied as in the past and through the same channels of sales and service.

Cemented carbides were introduced in the United States in 1928. Union Wire Die Corp. was appointed United States distributor of Widia cemented carbide dies by Krupp Works, Essen, Germany. Under this arrangement, Krupp imported Widia in hardened form. This hardened metal was then made into dies by Union Wire Die Corporation.

In the same year, the General Electric Co. licensed Carboloy Co., Inc., to manufacture and sell Carboloy cemented carbides in the United States. The introduction of Carboloy was preceded by several years of development work by General Electric Co.

Cemented carbide dies were rapidly adopted by those engaged in the drawing and extrusion of wire bar and tubing. Today, every mill in this country uses cemented carbide dies to some extent and many are 100 per cent equipped with this die material.

Contract to Dravo For Bridge Caissons

DRAVO CORP., Pittsburgh, has been awarded a contract involving about 1000 tons of steel for all-welded steel caissons for the Bronx-Whitestone bridge, New York.

The order calls for two floating caissons 38 ft. square with rounded corners for the twin main pier at the Queens side of the channel span. In addition to the floating sections, steel superstructures are also required.

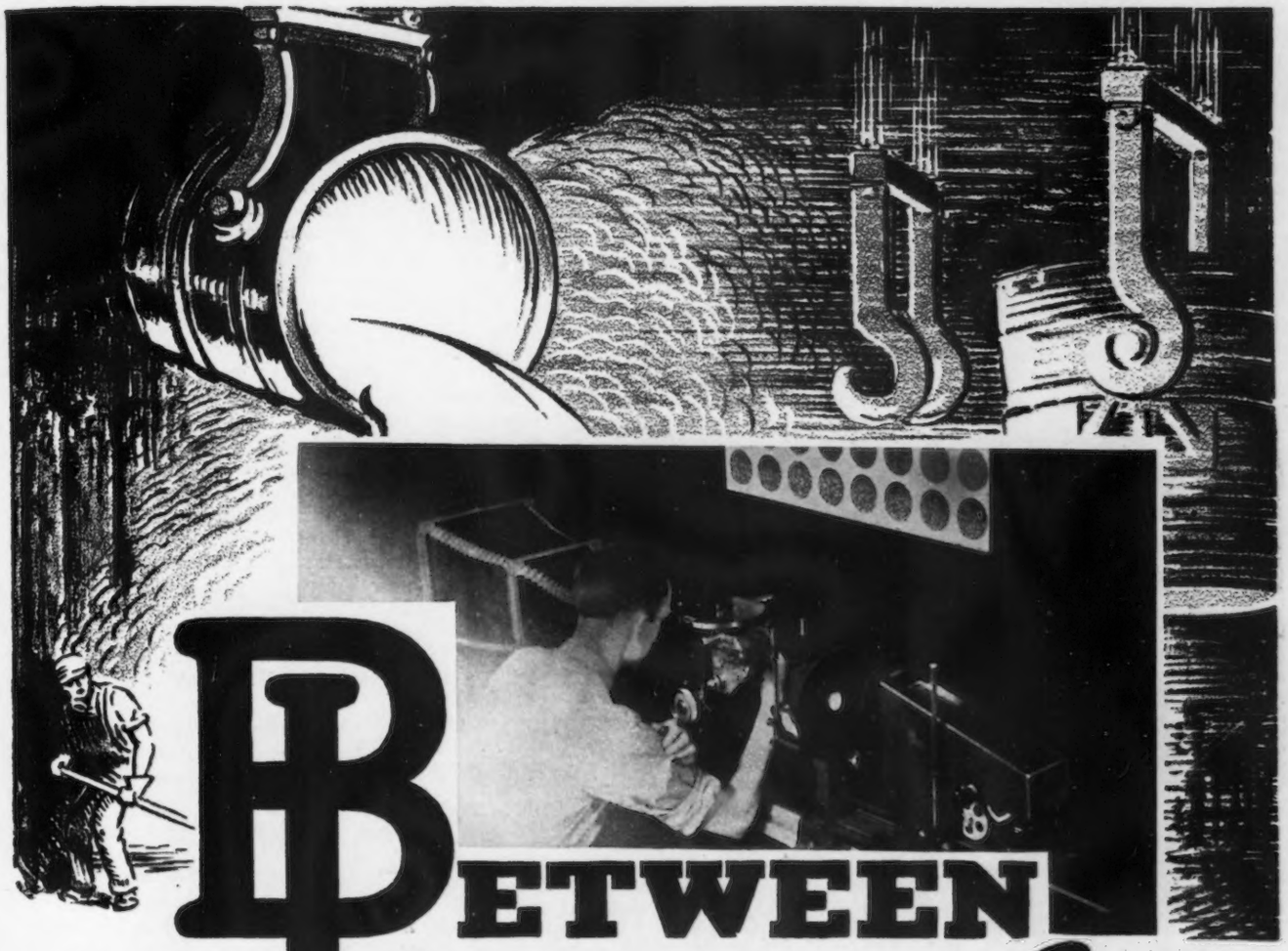
The main pier on the Bronx side will require two 38 ft. square steel cutting edges for the twin column concrete pier. The anchorage on the Queens side requires two large cutting edges, each 100x33 ft., as well as two circular cutting edges 24 ft. in diameter.

Steel Earnings Less Per Employee at Work

THE corporate earnings realized in 1936 by 32 large steel companies per employee on their payrolls were lower than in any of the seven years immediately preceding the depression, amounting to $259 last year, compared with an average of $490 for the period from 1923 through 1929, according to calculations by the American Iron and Steel Institute.

The amount per worker which remained after payment of the expenses of the companies in 1936 was only 18 per cent of the average annual wage paid to employees during the year, as against 44½ per cent in 1929.

The sharp reduction realized by



BETWEEN THE LADLE AND *You*

. . . stands the ever watchful metallurgist safeguarding the quality of the steel you buy. His work is to combine science and experience into a practical inspection service that maintains supreme manufacturing standards in the production of B & L Cold Finished Bar Steels. With modern photomicrographic equipment, he determines grain size, checks structural conditions and searches out hidden flaws detrimental to the subsequent fabrication of the bar. Only steel of unblemished character passes muster in B & L mills . . . thus contributing to the betterment of your product and yielding the greatest return on every dollar you spend for B & L bars.

COLD DRAWN BARS * GROUND SHAFTING * ULTRA-CUT STEEL SPECIAL SECTIONS * EXTRA WIDE FLATS * ALLOY STEELS

BLISS & LAUGHLIN, INC.

HARVEY, ILL. *Sales Offices in all Principal Cities* BUFFALO, N.Y.

the industry per man employed was caused partly by the fact that the companies' profits for 1936 were generally lower than in the pre-depression years, and partly by a record-breaking increase in the number of men employed. In 1936 the industry employed about 10 per cent more men than in 1929.

The amount realized by the steel companies per worker in 1936 was less than one-third of the $842 realized for 1929 and was less than half of the 1928 figure of $546. In the four depression years from 1931 through 1934, the aggregate net losses of the companies amounted to a total of $680 per man employed.

For the seven-year period from 1930 through 1936, the companies realized an average annual net of $48 per worker, their profits in 1930, 1935 and 1936 little more than offsetting the losses from 1931 through 1934. Over the seven years, the total net earnings of the companies covered by the survey was $141,587,608, less than 4 per cent of their payrolls during the period, which amounted to $3,856,094,455.

PWA Achievements Described in Booklet

IN commemoration of four years of activity, the Federal Emergency Administration of Public Works has published a booklet showing some of the projects constructed with PWA funds. Harold L. Ickes, PWA administrator, describes the works program as having "made possible four-fifths of all public construction in the United States during the past four years" and "has released over $1,126,000,000 for wages and nearly $2,000,000,000 for materials." There is about a billion dollars worth of PWA construction still outstanding which will require two years to complete. In President Roosevelt's reorganization plan, now before Congress, provision is made for a permanent Department of Public Works with a cabinet status which will absorb the PWA, according to Mr. Ickes.

Steel Employment Rise Is Indicated

COMPLETE figures on employment and payrolls of the steel industry during May are as yet unavailable because strike conditions in certain companies have delayed access to plant records, according to the American Iron and Steel Institute.

Data which are available for May, however, covering more than 200 iron and steel producing companies, indicate an increase of approximately 6000 over the number of men employed in the industry in April. Number of employees in those companies during May was 522,000, as against 516,000 in April. The entire industry in April employed a total of 589,000 workers.

Total payrolls of the companies in May amounted to $81,512,000, as against $81,786,000 in April, the slight decline in payrolls reflecting the fact that the rate of steel operations in May was 88.8 per cent of capacity, compared with 90.3 per cent in April.

The 469,000 wage-earning employees of the companies reporting earned an average of 86.0c. per hr. in April, which compares with average hourly wages of 85.2c. in the same companies during April.

An average of 38.7 hr. per week was worked by wage-earning employees in May, as against 41.0 in April.

An Announcement by Carboloy

To All Users of

"UNWIDIES"

(Widia Cemented Carbide Dies)

EFFECTIVE July 15, 1937, the Union Wire Die Corporation, engaged in the manufacture and sale of Widia cemented carbide drawing and extrusion dies, has sold, to Carboloy Company, Inc., its entire assets and interests in the cemented carbide business.

Carboloy Company, Inc., will continue to fill orders for Unwidies with Widia material. All grades of Carboloy die material will also be available exactly as in the past. Orders for Unwidies and Carboloy dies may be placed through exactly the same channels as in the past, and the same sales, service and manufacturing personnel will continue to serve you in the same way as before.

It is our sincere belief that this new organization, combining the research, manufacturing, sales and service facilities of the two largest suppliers of cemented carbides in the United States, will be in a position to accomplish far greater results in the interests of all cemented carbide die users than was ever before possible.

We feel that the obvious production savings and the further coordination of skilled personnel now made possible, should result in a distinct trend toward more substantial economies, better quality of product, and an increased order of performance for all cemented carbide die users.

CARBOLOY COMPANY, INC.

Detroit, Michigan

CHICAGO • CLEVELAND • NEWARK • PHILADELPHIA • PITTSBURGH

Pacific Coast Representatives

LOS ANGELES, CALIF. • PORTLAND, ORE. • SEATTLE, WASH.

Offices and Plants of the Union Wire Die Corporation

MAIN PLANT AND OFFICES: STAMFORD, CONN.

BRANCHES: CHICAGO • CLEVELAND • NEW YORK • PITTSBURGH • TRENTON • WORCESTER

Allis-Chalmers to Expand Plants

ALLIS-CHALMERS MFG. CO., Milwaukee, has decided to spend from $3,000,000 to $4,000,000 on plant expansion and improvement this year, according to an announcement by General Otto H. Falk, chairman of the board of directors. The first step and the only one fully decided upon is to recondition the boiler house at the main works in West Allis, suburb of Milwaukee, at a cost of about $800,000. It is tentatively proposed to spend about $1,000,000 at the agricultural implement works in La Crosse, Wis., and between $1,000,000 and $2,000,000 for additional production of farm tractors at the main works or at one of the branch factories. New machinery and equipment will increase the total investment planned.

The program is in addition to recent enlargement of production facilities at a cost of $1,000,000 at the track-type tractor works in Springfield, Ill., and more than $500,000 at La Crosse, Wis. In general, the plans concern to the largest extent the agricultural equipment divisions of the company.

Sources of Current Trade Statistics

The Bureau of Foreign and Domestic Commerce of the Department of Commerce has issued a 48-page book entitled, "Sources of Current Trade Statistics." This is No. 13 of the bureau's market research series. It lists approximately 3000 statistical series with the names and addresses of the compiling agencies. Forty of these are governmental agencies and 200 are non-governmental.

The series includes production, machine activity, new orders, unfilled orders, sales, shipments, receipts, consumption, stocks, wholesale and retail prices, exports and imports, payroll and earnings classified by the major commodities or industries.

The commodities covered are food, textiles, forest products, paper and printing, chemicals, coal, petroleum, rubber, leather, stone, clay and glass, iron and steel, nonferrous metals, machinery and transportation equipment. Other items are construction and real estate, electric power and gas, employment conditions and wages, finance, trade, transportation and communication.

Trackwork Shipments Up Second Quarter

SHIPMENTS of trackwork for T-rail track of 60 lb. per yd. and heavier reached new high ground in the second quarter of 1937 and exceeded shipments for all of 1932. According to the Iron and Steel Institute, 27,889 net tons was shipped in the quarter ended June 30, against 27,278 tons in all of 1932 and 20,852 in the second quarter of 1936. In the first quarter of this year, 26,119 tons was shipped. The June figure of 9194 tons was also a gain over the May figure of 8,807 tons, but was below the peak shipments of 10,720 tons recorded in April.

For the first half, shipments totaled 54,008 net tons, a gain of 56 per cent over the 34,592 tons shipped the first half of 1936.

Mrs. Jean O'Haver Shassere Has Shown That a Woman Can Sell Steel

To the man or woman striving
To win out by just sheer pluck,
I say—Don't take it on the chin,
But learn instead to duck.

And as you come up—face the foe,
Never falter but stand toe to toe,
For facing troubles makes them go;
We reap the courage that we sow.

SUCH self-expressed philosophy has enabled a busy mother and housewife of Terre Haute, Ind., to become a well known figure in the steel industry.

Ask some of the salesmen who were present at the letting of the

MRS. SHASSERE

reinforcing steel for the huge Merchandise Mart building in Chicago to tell you how Jean O'Haver Shassere, representing the Olney J. Dean Co., walked out with a contract for what is said to be the largest tonnage of reinforcing mesh ever to be used in one building—over 1000 tons of mesh and 100,000 inserts especially designed by Mrs. Shassere herself. And if you think this was merely chance and extraordinary luck, how do you account for the fact that the very next day following this award Mrs. Shassere presented the Dean company with a large order for bars and mesh for Chicago's famed Board of Trade Building? The reinforcing bar requirements for the Marshall Field office building in Chicago were also handled by Mrs. Shassere, and she designed thousands of spacers particularly for this job as well. These three structures are among the largest in Chicago.

Mrs. Shassere is not unlike thousands of other women in that her educational background consisted of piano, voice and public schools. The difference lies in her intense interest in people and their problems and her sincere desire to help them solve their difficulties. Thus it was that Farmersburg, Ind., and a number of similar small surrounding towns secured telephone directories, for Jean Shassere sold enough advertising to pay for such a directory with no cost to the telephone company, made a nice profit for herself, and at the same

time stepped up by several notches the efficiency of the telephone service to the subscribers. From this experience, Mrs. Shassere, who had become a wife, mother and widow, was called to Terre Haute to work in the advertising department of *The Tribune* there, and from this position to head of the Paris, Ill., *Beacon* advertising staff.

After this job, time was taken out for awhile to let the children, there being two, a boy and girl, grow up into high school. Meanwhile, a driving sleet storm which held up her Terre Haute street car, because the motorman had to stop and wipe the windshield clean, made her see the necessity of and invent a windshield wiper for street cars, which was soon thereafter sold to a St. Louis car company, and was pronounced foolproof by Dr. Philip Woodworth, president of the Rose Polytechnic Institute in Terre Haute.

It was while discussing her invention with Dr. Woodworth that Mrs. Shassere obtained the idea of selling steel as a livelihood. At that time Dr. Woodworth was worried over the delay in securing steel from Indianapolis for some new school buildings and mentioned his troubles to Mrs. Shassere. With the aid of the Terre Haute public library, she took up the study of steel, its manufacture and its uses. After contacting a firm of architects in Terre Haute and gaining their cooperation and offer to furnish blueprints to her without requiring the usual $25 charged to out-of-town steel concerns, Mrs. Shassere wrote to Major L. C. Gage, head of the Gage Structural Steel Co., and asked permission to represent him in her territory. Major Gage knew Mrs. Shassere in a social way, but he was hardly prepared for such a request, as he could not conceive of a woman, especially Mrs. Shassere with her feminine background and manners, not to mention her two children, as a steel salesman. Nevertheless he determined to give her an opportunity to display her talents in this direction, so told her his company would be glad to figure a price from any specifications she might send to them, and that they would handle any order she might be able to obtain. Her stipend was to be commission only, so in order to make money she had to make good first.

From a start which consisted of supplying the steel for three small district schools, costing about $5,000 each, Mrs. Shassere went rapidly to larger and more lucrative jobs, and from Terre Haute into neighboring towns. Soon she saw the wisdom of adding other lines to structural steel and became the representative in the same territory for Union Foundry works, ornamental iron; Olney J. Dean Co., reinforcing bars and mesh; Truscon Steel Co., metal sash and metal lath, and Johnston & Jennings Co., window weights.

After handling these accounts for about seven years, Mrs. Shassere in 1927 decided to try the more difficult field of Chicago as a representative of the Olney J. Dean Co.

Her inventive streak had not run its course with the sale of the windshield wiper and, when the architects of the Merchandise Mart decided to use inserts in an unplastered section of the building which were to be embedded flush in the concrete and threaded so that the rods on the mesh could be screwed into the inserts when the plastering was completed, Mrs. Shassere designed them herself and obtained an order for 100,000 as the result of her labors. The feature of these inserts was their smallness, strength and cheapness, and the brass screw which was used in each one to stop up the opening and prevent it from filling with concrete or dirt. The spacers used in the Field building were also of her own design, being made from galvanized sheets rather than plain sheets so as to prevent corrosion. Mrs. Shassere says this idea came to her merely because of a woman's desire to keep things clean.

Half of selling, Mrs. Shassere believes, is knowing who can help you—once you get to the right person, then the work of selling your product begins.

Still interested in young people, even though her own two children are fully grown, Lee now being the editor of the *Northwest News* in Chicago, and Beatrice the superintendent of Chicago's Belmont Hospital, Mrs. Shassere thinks that girls, who have no occupation in mind, should consider architecture as their life work. It is not only a fascinating profession, she says, but it also provides a definite place for a woman, especially in the field of home design.

Now engaged in sales and contact work for W. J. Holliday & Co., steel warehouse, with plants at Hammond, Ind., and Indianapolis, Mrs. Shassere is keenly interested in current problems of the steel industry and the world at large. Only recently, July 13, she was featured over a nation-wide hookup of the National Broadcasting Co. as the heroine in one of a series of sketches of successful persons who have attained their present positions in the face of great odds.

. . PERSONALS . .

CHARLES R. HOOK, president, American Rolling Mill Co., was the guest of honor at a "welcome home" party at Middletown, Ohio, upon his return from a business trip to Europe. More than 5000 Armco men and their families participated. The Armco representatives presented Mr. Hook with an electric desk clock and Mrs. Hook with a large bouquet of roses. Mr. Hook, in describing some of his impressions gained while abroad, said that his visit made him "more and more conscious of the great benefits which have come to us under our form of government and of the necessity for each and every one of us to do our part in order that our economic and political system may be preserved, so we can continue to have here liberty of thought and action and a standard of living rising higher and higher as time goes on."

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RUDOLPH FURRER, who resigned as chief engineer and director of research, A. O. Smith Corp., Milwaukee, in 1932, and returned to the executive staff of the company in December, 1936, has been elected vice-president in charge of engineering. He entered the profession with the old Scranton, Pa., works of Allis-Chalmers Mfg. Co., Milwaukee, in 1907, was transferred to the main works in 1911, and joined the Smith Corp. in 1918. From 1932 to 1935, Mr. Furrer was assistant to the president of the National Tube Co., Pittsburgh. Rae F. Bell, an executive of the A. O. Smith Corp. since 1924, and in recent years a vice-president, has been elected to the newly created office of first vice-president.

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GUSTAVUS A. MAGEE has retired from his connections with the Aluminum Goods Mfg. Co., Manitowoc, Wis., because of ill health. He became associated with the Standard Aluminum Co., Two Rivers, Wis., in 1907, and upon its merger with Aluminum Goods company, was appointed general manager of its No. 1 plant in Two Rivers. HERMAN C. WENTORF, general manager of plant No. 4 in Two Rivers, has been given charge of both Nos. 1 and 4 works there.

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G. W. HOSKINS, recently with Lincoln Electric Co., has joined the Harnischfeger Corp., Milwaukee, as sales engineer for Smootharc

welder and weld rods in the Philadelphia territory. Mr. Hoskins, before joining the Lincoln company, worked as welding inspector on 100 miles of 8-in. pipe line for the Sun Oil Co. Previous to this time he worked as a welder operator on tank construction for six months in Charleston, W. Va. His practical experience also includes several months in general shipyard welding on the East coast.

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HERMAN R. BLICKLE, formerly vice-president, Fort Pitt Bridge Co., has been appointed president, succeeding THEODORE A. STRAUB, who has retired owing to ill health. Both Mr. Blickle and Mr. Straub have been associated with the Fort Pitt Co. since it was organized in 1896. EDWARD H. PATTERSON, director, has been named vice-president, succeeding Mr. Blickle.

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CHARLES LUTON, formerly sales engineer for S.P.O., Inc., Cleveland, has joined the Jeffrey Mfg. Co., Columbus, Ohio. In his new capacity he will serve as sales engineer in the foundry equipment division. His earlier experience includes 10 years with the Taylor & Boggis Foundry, Cleveland—three years as superintendent of foundry.

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J. L. TERRY, president of the Q. & C. Co., New York, has also been elected treasurer of that company. M. ISELDYKE, JR., secretary of the Q. & C. Co., since 1924, has been made vice-president. Mr. Iseldyke has been with the company since 1913. R. R. MARTIN, who joined the company in 1915, having served in the capacity of auditor and assistant treasurer since 1924, has been elected secretary and assistant treasurer. LEWIS THOMAS, since 1927 district sales manager, has been made general sales manager with headquarters at 59 East Van Buren Street, Chicago. Mr. Thomas is a graduate in engineering of Lehigh University and has been identified with the sales department of the Q. & C. Co. for the past 16 years.

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O. E. ROMIG has been appointed research engineer of the research laboratory, Pittsburgh district, Carnegie-Illinois Steel Corp. He formerly was a contact representative in the sheet and strip division of the metallurgical department, dealing particularly with silicon steel for electrical fabrication purposes. Mr. Romig joined U. S. Steel in 1924 in the research laboratory of the American Sheet & Tin Plate Co. He was manager of the electrical sheet division at the time American Sheet & Tin Plate

Co. joined the Carnegie-Illinois Steel Corp. in June, 1936.

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GEORGE M. HUMPHREY, president, M. A. Hanna Co., Cleveland, has been elected a director of the Phelps Dodge Corp. He is also a director and chairman of the executive committee of the National Steel Corp.

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H. L. ENGLEMAN, traffic manager of the Reynolds Metals Co. plant, Louisville, Ky., since 1927, has been appointed general traffic manager of the company, with offices in New York. He is chairman of the board of directors and former president of the Transportation Club of Louisville. J. E. LEWIS, assistant traffic manager, succeeds Mr. Engleman at Louisville.

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HOWARD C. KAEFF, formerly turn foreman of the 42-in. hot strip mills at the Gary sheet and tin mills of Carnegie-Illinois Steel Corp., has been appointed superintendent of the cold reduction mills of the Tennessee Coal, Iron & Railroad Co. at Birmingham. Mr. Kaeff

H. C. KAEFF

was first employed at the Gary sheet mill on Oct. 24, 1916, as assistant order clerk, a position he held until 1926, when he left the corporation. He was re-employed two years later as cutting-up shear foreman and, after serving in that capacity until 1935, was transferred to the cold reduction department. A year later he was transferred to the 42-in. hot strip mills as turn foreman and held that position until his recent promotion.

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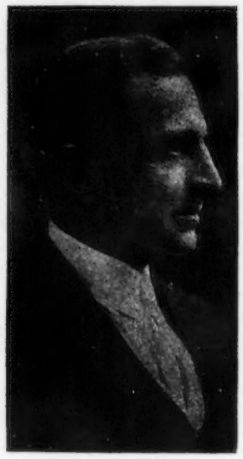
RALPH K. CLIFFORD, formerly general superintendent, has been appointed works manager of the Kokomo plant of the Continental

(CONTINUED ON PAGE 97)

...OBITUARY...

EDWARD STECKEL KNISELY, retired former vice-president in charge of sales for the Bethlehem Steel Co., died July 9 in Johns Hopkins Hospital, Baltimore. Mr. Knisely entered the Bethlehem Steel Co. Aug. 21, 1890, as an apprenticed machinist in machine shop No. 2. He was 17 years of age. In 1893 he enrolled at Lehigh University, and during the summers of 1894 and 1895 worked in the plate mills of the steel company. He did not finish his course at the university, but on Dec. 15, 1901, was transferred to the sales department of the steel company and went into the Pittsburgh sales office Aug. 1, 1904.

On Nov. 1, 1908, he was made Western sales representative with headquarters in Pittsburgh, and on June 10, 1915, went to Bethlehem as general manager of sales. He was appointed vice-president in charge of sales on June 21, 1923, and held the post until his retirement Dec. 31, 1928. He had spent almost 38 years continuously in the employ of the steel company.



E. S. KNISELY

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RICHARD PROSSER, senior member of the engineering and importing firm of Thomas Prosser & Son, New York, died at his summer home, Weekapaug, R. I., on July 12. Mr. Prosser was born in Brooklyn, N. Y., Oct. 8, 1864, educated there, and spent his entire business life with the firm of his grandfather and father, and was active in the business up until a few months before his death. The business of the firm will be carried on by Mr. Prosser's son, Roger D. Prosser. Mr. Prosser was also president and director of the American Saw Mill Machinery Co., Hackettstown, N. J.; director of the American Saw Works, Hackettstown, N. J.; Corley Mfg. Co., Chattanooga, Tenn.; James W. Pyke & Co., Montreal; and the United States Casualty Co. of New York.

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EDGAR. L. NEWHOUSE, former chairman of the board of the American Smelting & Refining Co., who retired in 1930 after 45 years' association with the Guggenheim interests, died July 13 at Harbor Sanitarium, New York, after several weeks' illness resulting from pneumonia. Mr. Newhouse, who

was born in Philadelphia, was graduated from Columbia University School of Mines in 1886. His first employment in the metallurgical field was with the Kansas City Smelting Co., Kansas City. Two years later he became associated with the Guggenheim interests as an engineer at Pueblo, Col. As the Guggenheims acquired extensive mining properties in Colorado, Utah and Nevada. Mr. Newhouse rose to the post of vice-president, and subsequently was chairman of the board of directors of the American Mining & Smelting Co., which post he held for 15 years.

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EDWIN P. CRAWE, prominent in the New England stove manufacturing industry, died July 1 at his home in Newton, Mass., at the age of 52. He was a former president of the National Stove Association.

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ARTHUR M. BAKER, former manager of the Simpson Dry Dock Co., died at his summer home in West Falmouth, Mass., Tuesday, July 13. He was born in Boston 72 years ago, was graduated from Harvard with the class of 1889, and in late years was in the stock brokerage business.

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CHARLES L. SCHLATER, who had been a salesman for the Woven Wire Fabrics Division of John A. Roebling's Sons Co. since 1909, died June 29 at his home in Philadelphia, aged 78. He had been in active business for 62 years.

....PIPE LINES....

United States Engineer Office, Memphis, Tenn., asks bids until July 30 for 15 sections of 32-in., inside diameter, steel pontoon pipe, each section 52 ft. long (Circular 8).

Anderson-Prichard Oil Corp., Oklahoma City, Bell Oil & Refining Co., Tulsa, Okla., Cushing Refining & Gasoline Co., Cushing, Okla., and Rock Island Refining Co., Duncan, Okla., plan joint welded steel pipe line from Grandfield, Okla., to terminus on Mississippi River in eastern Iowa, about 650 miles, for gasoline transmission. Line will be used for output from four refining plants of companies noted, Bell company refinery being located at Grandfield, from which point line will run to Rock Island refinery at Beckett, near Duncan, thence to Anderson-Prichard refinery at Cyril, Okla., and then to Cushing company refinery at Cushing. From terminus in Iowa, noted, a branch welded steel pipe line will be built to a distributing point in central Iowa. Pumping stations for booster service will be built along route. Cost over $5,000,000. Ford, Bacon & Davis, Inc., 39 Broadway, New York, is engineer and will begin surveys for line at once.

Havre, Mont., has low bid from J. L. McLaughlin, 3003 Third Avenue North, Great Falls, Mont., at $117,173 for municipal natural gas distributing system, including welded steel pipe line for trunk service. A fund of $163,636 has been secured through Federal loan and grant for project. C. O. Moore is engineer.

United States Engineer Office, Conchas Dam, N. M., asks bids until July 24 for 1260 ft. of 3½-in. wrought steel pipe; also for 360 malleable iron pipe caps (Circular 6).

Rio Grande Valley Gas Co., Brownsville, Tex., plans welded steel pipe line from gas field in La Blanca, Tex., district to connection with main pipe line system of company near Donna, Tex., about 9½ miles, for natural gas transmission. Joseph Jordon is vice-president in charge.

Commanding Officer, Ordnance Department, Picatinny Arsenal, Dover, N. J., asks bids until July 6 for 1200 ft. of welded steel pipe, 1½ to 4 in., and for 600 ft. of similar pipe, ¼ to 2 in.; also for two 16-ft. lengths of 6-in. water pipe (Circular 13).

Bureau of Reclamation, Denver, closes bids July 29 for two plate-steel turbine inlet pipes for Boulder power plant, Boulder Canyon Project (Specifications 940-D).

Col-Tex Refining Co., Colorado, Tex., a joint interest of Anderson-Prichard Oil Corp., Oklahoma City, Okla., and Standard Oil Co. of Texas, Houston, Tex., plans new welded steel pipe line from Colorado to Grandfield, Okla., for gasoline transmission.

United States Engineer Office, First District, New Orleans, asks bids until July 29 for eight lengths of 20-in., outside diameter steel suction pipe, each length 17 ft. 3 in. (Circular 4).

Great Lakes Steel Expansion Will Almost Triple National Steel Corp. Capacity Since Organization in 1929

COMPLETION of extensive additions now in progress at the plant of the Great Lakes Steel Corp. will almost triple the ingot capacity with which the parent company, National Steel Corp., started when it was organized late in 1929, it is announced by Ernest T. Weir, chairman. The expanded plant will be in operation before the end of this year, by which time National's annual ingot capacity will have climbed to 3,400,000 tons from 1,200,000 tons in 1929.

With the new Great Lakes capacity, National Steel will have forged ahead to fifth place in the steel industry.

Expansion of finishing equipment, raw material sources and transportation facilities has paralleled the increase in primary steel capacity, and the whole development has been accomplished by a virtually continuous program of additions and improvements at Great Lakes Steel Corp., Weirton Steel Co. and other National operations.

ERNEST T. WEIR,
Chairman of
National Steel Corp.

The only major commodities not produced are pipe and wire and the company states that it can enter these markets with but slight rearrangement of facilities any time such a step is required to maintain National's competitive position.

Cost of Expansion $25,000,000

The present program at Great Lakes is one of the most extensive undertaken by the company and will be completed at a cost of more than $25,000,000. Some of the larger individual projects now being constructed include a new blast furnace, which will be among the largest in the world, coke ovens, open-hearth furnaces, annealing furnaces, a slabbing mill, gas mains and a gas holder, an ore bridge, and extension of the present ore docks.

All mill machinery, the major portion of electrical equipment and structural steel, and a substantial part of all other materials and equipment required in the program are being supplied by manufacturers in the Pittsburgh district.

The new blast furnace will have a capacity of 1000 tons of pig iron

per day. It will be 100 ft. high and will have a 25-ft. hearth and 28-ft. bosh. The furnace has been designed to permit enlargement when desired, and auxiliary facilities have been arranged so that two additional furnaces of the same size may be included in the installation at some future time. Two furnaces of smaller size comprise the present blast furnace department.

The four 200-ton open hearths now being constructed will represent a 33 1/3 per cent increase in Great Lakes open-hearth capacity. The new furnaces are being built so that they may be increased to duplicate the present 12-furnace installation. The 130 coke ovens under construction will have a capacity of 2550 tons of total coke every 24 hr.

The slabbing mill is being built in line with the 96-in. continuous hot and cold strip sheet mill that went into operation at Great Lakes last year and is so arranged that sheets, strip, or plate may be rolled direct from the ingot without reheating.

New annealing furnaces are being built which will increase annealing capacity by 50 per cent. This addition requires extension of the present annealing furnace building.

The gas plant installation includes a holder which will be 170 ft. high and 118 ft. in diameter and a 42-in. main almost three miles long. The coke ovens will be fired with gas from the blast furnaces. Excess blast furnace gas and the coke oven gas will be delivered through the mains to be used throughout the Great Lakes operations including slab and billet reheating, and open-hearth, box annealing, and normalizing furnace heating. The gas production will be approximately 83,000,000 cu. ft. per day.

The dock extension will provide space for the storage of the additional iron ore and coal required by operation of the new blast furnace and the coke oven. Ore and coal are brought directly to the Great Lakes plant by National's fleet of eight large lake freighters. Iron ore is mined from extensive reserves by Hanna Iron Ore Co., a National Steel subsidiary.

The design of the blast furnace, coke ovens, and open-hearth furnaces to permit the enlargement of the facilities themselves or the efficient installation of additional facilities is in line with a policy followed by National Steel Cororation throughout its expansion program. Last year at Weirton Steel Co. improvements of existing equipment make possible a 25 per cent increase in strip steel and tin plate production. In addition to provisions for expansion of existing plants National holds in reserve a site for an entirely new plant in the Chicago district.

Key Co. To Build Large Foundry

A NEW foundry for the manufacture of special alloy steel castings for its own products, which include high pressure and high temperature fittings for the oil industry, will be erected by the Key Co., East St. Louis, Ill. The Key Co. has been securing its castings from outside sources. The foundry building will be 360 x 266 ft. and will include a pattern shop, laboratories and heat treating department.

O. D. Conover, Cleveland, is the consulting engineer cooperating

with L. E. Everett, manager of the foundry. The general contract has been awarded to the Fruin-Colnon Construction Co., St. Louis.

The Mississippi Valley Structural Steel Co., St. Louis, will erect the building, which will require 450 tons of structural steel. Foundry Equipment Co., Cleveland, will furnish the core and mold ovens, the National Engineering Co., Chicago, the sand handling equipment, and the Pittsburgh Electromelt Furnace Corp., a 1½-ton electric furnace.

Back-to-Work Movement Opens Steel Company Coal Mines

PITTSBURGH, July 20.—A strong back-to-work movement has resulted in the opening of several Western Pennsylvania coal mines owned by some of the major independent steel companies, in the face of the strike called by the United Mine Workers of America, which organization was seeking to make more effective the walkout of the Steel Workers Organizing Committee.

The Davidson and Trotter mines of Republic Steel Corp. near Connellsville, Pa., were among the first to reopen. At least half of the 400 men normally employed returned to the shafts over a week ago and more have returned since that time.

Meanwhile, in Pittsburgh steel mills and metalworking plants, SWOC appeared to be encountering increasing difficulty in collecting dues.

At the Westinghouse Air Brake Co., members of the Railway Equipment and Air Brake Workers' local, a CIO affiliate, decided against calling a strike which would have affected approximately 6000 employees. Advised by leaders against such a move, the CIO group determined to seek a National Labor Relations Board election to decide the controversy with the independent United Employees' Association over eligibility rules.

The plant of the Heppenstall Co. has remained closed since July 12 when members of the SWOC walked out suddenly while company officials and leaders of the union were in conference.

June Construction Reaches New High

CONSTRUCTION recovery reached a new high point in June, topping the previous recovery peak of July, 1936, by 8 per cent and showing an increase of 30 per cent over May of this year. According to the F. W. Dodge Corp., the June construction total for 37 states east of the Rockies amounted to $318,137,000 for all classes of work, as compared with $244,112,800 in May and $232,664,700 in June, 1936. Increases over June, 1936, took place in all three classes reported, residential, nonresidential and civil engineering projects.

Ford Motor Orders 61 Coke Ovens

THE Ford Motor Co. has placed an order with Koppers Co. for the building of 61 Becker type combination ovens. These ovens are for the company's River Rouge plant at Dearborn, Mich., and will re-

place batteries of old ovens. This order follows a previous one for two batteries, totaling 122 Becker type ovens, which were completed this spring. The batteries will be operated on blast furnace gas, the first two beginning the latter part of this year and the latest battery early next summer.

Koppers Co. also is completing the construction of two batteries, totaling 146 Becker ovens, for the Tennessee Coal, Iron & Railroad Co. at Birmingham, which will be put in operation within the next few weeks.

A new battery of 59 Becker ovens at the plant of the Inland Steel Co. at Indiana Harbor, Ind., is nearing completion and is expected to begin production by October.

Employers Cannot Ask for Non-unionists From U.S. Service

WASHINGTON, July 20.—Open-shop employers who specify their preference for either union or non-union workers in seeking to fill vacancies through the U. S. Employment Service will be refused on the grounds that such requests are in violation of the Wagner Labor Relations Act, according to a recent ruling made by the Department of Labor.

The employment service is "free to accede," however, to the request for workers of a particular union when made by an employer who has signed a closed shop agreement.

Citing section 8 (3) of the Wagner Act, the department's ruling said that "an agency created by act of Congress is under a duty to refrain from any course or conduct which enables or at least facilitates an employer to violate another Federal law. . . ." The section of the Wagner Act referred to prohibits "discrimination in regard to hire or tenure of employment or any term or condition of employment to encourage or discourage membership in any labor organization."

The Labor Department hopes that its decision will keep the employment service free of any charge of taking sides in the unionization issues. The ruling was made at the request of the District of Columbia office of the United States Employment Service and will become the working policy of the service throughout the country, it was said.

Wage and Hour Bill May Go Down to Defeat; Labor Lukewarm

WASHINGTON, July 20.—The Administration's wage and hour bill may go down in defeat at the hands of labor, the group which presumably would benefit the most from its passage. As a result, Administration adherents of the measure are on the spot because the enthusiastic support of labor, essential if the bill is to have any chance at all, has not been forthcoming.

Some observers say that labor's apparent indifference means one of two things or both; that the bitter controversy ranging between the Lewis and Green factions have directed the efforts of these two

groups elsewhere; or that labor finds it difficult to support a bill on which they cannot agree or a measure of doubtful benefit to the workingman even though sponsored by the Roosevelt Administration.

AFL lobbyists have been observed concentrating their efforts elsewhere on Capitol Hill, and William Green makes no secret of the fact he considers the pending low-cost housing bill—and not the wage-hour measure—the most important bill on the calendar in so far as labor is concerned.

John L. Lewis and his CIO lieutenant, Sidney Hillman, whose special field is organizing the textile industry, are in disagreement over the bill. Lewis is in favor of the latest revision made by the Senate committee, at least the wage-hour ratio of 40-40 since the field above those levels is left open for his collective bargaining efforts. Hillman, on the other hand, contended at the recent hearings that the bill should cover workers earning up to 80c. an hr.

Labor's Non-Partisan League, although a Lewis organization in which Hillman is an active participant, appears to support the view of Hillman and in a recent publicity blast announced "an aggressive national campaign" to liberalize the wage-hour provisions to 60c. an hour and 35 hr. a week.

Some observers believe the bill is virtually dead anyway. Labor's coolness may make it certain.

The death of Senator Robinson is not believed to have affected the the wage-hour bill except, of course, to complicate the general legislative picture. The Senator told reporters a few days before he died that he considered passage of the bill unlikely.

Navy Yard Starts Plans for Battleships

WORK was begun June 19 on detailing the parts for the two battleships to be constructed in the Brooklyn and Philadelphia Navy yards by the United States Navy. According to Capt. Charles A. Dunn, industrial manager of the Brooklyn yard, approximately 500 draftsmen will work 14 months before a keel is laid. Fabrication of the parts will be started in three or four months, however, as soon as the plans have progressed to the point where bids can be taken. Among the items to be fabricated before the keel is laid are the armor plates and plates connected with the keel.

The two 35,000-ton ships are to be named the North Carolina and the Washington and are duplicate in design. They will cost approximately $60,000,000 each. At least 35 per cent of the plates will be welded in order to gain strength and save weight. New types of high-pressure boilers and turbines are expected to save 400 tons over older designs. The ships will theoretically be bombproof against both airplane bombs and underwater types.

These are the first battleships to be constructed by the United States since 1923. Keels for the West Virginia and the Colorado, which were completed in that year, were laid in 1919 and 1920 respectively. The construction of the new ships will not create work for outsiders, the employees at the yards being able to carry on the work at present. There are now 1400 men at work on the cruiser Brooklyn, to be commissioned in September, and 1100 on the cruiser Honolulu, to be launched in August.

Packard Delays Shipments of Steel

DETROIT, July 20.—A 30-day postponement of shipments of steel to the Packard Motor Co. was ordered Monday. It was explained that a change in shipping dates was necessary because in June part of the die program was slowed up and the factory cannot accommodate any more supplies at present. Shipments delayed during the recent steel strikes have been coming through since the strike settlement, so the plant is well supplied.

These developments indicate that Packard, which would have been first in production of its 1938 models, will get into production about the same time as the rest of the automotive industry.

The Ford Motor Co., which was expected to buy heavily this month, has revealed that its steel plant will continue in operation through the vacation period for the rest of the Ford organization. As a result buying is not as heavy as anticipated. Although General Motors Divisions are still occupied with filling orders for 1937 models, it has been learned that Fisher Body is pressing hard for deliveries on steel specified for 1938 models.

Memorial Day Riot Police Exonerated

CHICAGO, July 20.—After hearing testimony all week, a coroner's jury decreed this afternoon that the deaths at the hands of policemen of 10 CIO strikers and sympathizers at the Memorial Day riot at the plant of the Republic Steel Corp. here were justifiable. The jury stated that "from the testimony presented, we believe this occurrence to be justifiable homicide."

PERSONALS

(CONTINUED FROM PAGE 89)

Steel Corp. JULIAN L. SCHUELER, formerly superintendent of the steel and wire division, has been named general superintendent.

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C. M. YODER, president Yoder Co., Cleveland, has gone to England for several weeks' business trip.

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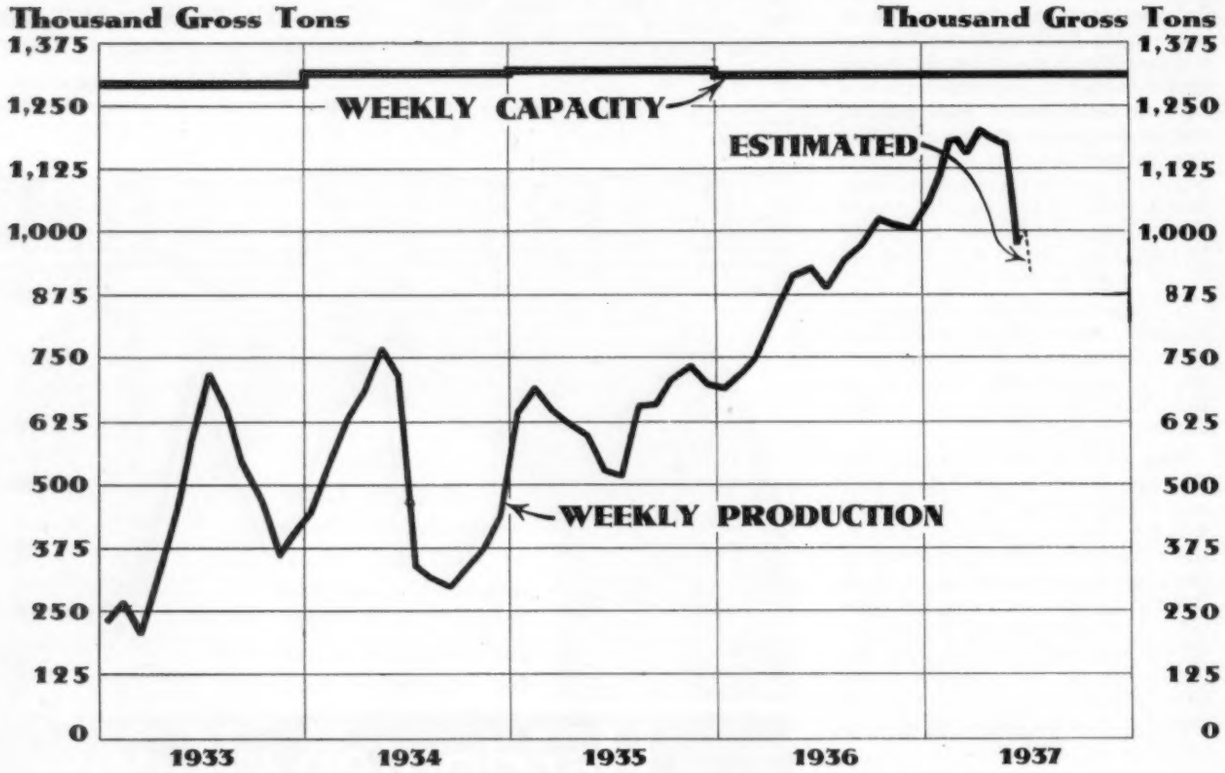
FRANK N. SATTER has joined the Cleveland district sales force of the Midvale Steel Co. He has been connected with the Cleveland sales office of the Bethlehem Steel Co.

DAVID P. ANDREWS has been appointed district sales manager of the new Indianapolis office of the Great Lakes Steel Corp., division of National Steel Corp. His office will be at 1215-17 Circle Tower. Mr. Andrews formerly was associated with Carnegie-Illinois Steel Corp.

M. J. KEARINS, president of Whitman & Barnes, Detroit, sailed from New York July 17 for an extended trip to Europe. He will contact Whitman & Barnes distributers in England and Continental Europe, returning to America late in August.

PRODUCTION

Average Weekly Production of Open-Hearth and Bessemer Steel Ingots by Months, 1933-1937, and Estimated Production by Weeks in 1937



Figures for the Current Week Are Not Indicated on the Chart Until the Following Week

STEEL INGOT PRODUCTION BY DISTRICTS: Per Cent of Capacity

	Current Week	Last Week
Pittsburgh	85.0	86.2
Chicago	84.5	79.5
Valleys	77.0	75.0
Philadelphia	71.0	70.0
Cleveland	43.0	80.0
Buffalo	89.5	89.5
Wheeling	96.0	95.0
Southern	61.5	76.5
Ohio River	89.5	92.5
Western	95.0	95.0
St. Louis	91.0	91.0
Detroit	100.0	90.0
Eastern	98.0	70.0
Aggregate	82.0	83.0

Weekly Booking of Construction Steel

	Week Ended				Year to Date	
	July 20, 1937	July 13, 1937	June 22, 1937	July 21, 1936	1937	1936
Fabricated structural steel awards	16,000	13,250	15,325	21,515	684,740	637,680
Fabricated plate awards	115	1,170	105	12,710	62,995	164,330
Steel sheet piling awards	0	0	3,820	8,000	35,555	33,540
Reinforcing bar awards	6,820	1,610	6,300	8,515	140,815	207,300
Total Lettings of Construction Steel	22,935	16,030	25,550	50,740	924,105	1,042,850

. . . SUMMARY OF THE WEEK. . . .

. . . Carnegie-Illinois reaffirms present prices for fourth quarter.

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. . . New business in small volume, but automobile buying may bring a turn.

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. . . Operations off slightly, trend uneven; scrap rises sharply in some districts.

PRESENT prices on virtually all steel products were reaffirmed for fourth quarter on Tuesday by the Carnegie-Illinois Steel Corp. An exception was made of galvanized sheets and possibly "some other items," on which announcement will be made later. The announcement of unchanged prices specifically covered bars and small shapes, structural shapes, plates, tin plate and other tin mill products, strip, sheets, sheet piling, standard and light tee rails and accessories, car and locomotive axles, solid wrought steel wheels and semi-finished products for delivery in the United States by Dec. 31, 1937.

The seasonal lull in new steel business is beginning to have an effect on operations despite the presence of substantial backlogs in some products and the fact that plants that were recently affected by strikes have increased their output over that of a week ago.

However, there are indications that the low point of summer buying has about been reached and, in fact, there is already evidence of an upward trend in orders at Chicago, where companies that had no strikes report a gain, largely accounted for by automobile buying for new models. At Cleveland and Detroit also there has been a fair amount of buying by automobile companies. Ford Motor Co. has ordered about 50,000 tons of sheets, about half of the amount inquired for to begin an initial run of 250,000 cars when its assembly line resumes on Aug. 9 on a 6000-car a day schedule after a shutdown that began on July 16.

Aside from automobile buying, steel business has been declining as compared with June, but consumers and jobbers are bringing new pressure on mills for quicker shipments against old orders, a probable indication that their stocks of steel have been heavily drawn upon in recent weeks. There is a very general belief in the steel trade that business will show no further falling off, and that new buying in larger volume will make its appearance within the next few weeks.

THE trend of steel operations is uneven, rises occurring in some districts and declines elsewhere. At Pittsburgh the rate has declined one point from last week to 85 per cent, but in the adjacent Wheeling district there has been a gain of one point to 96 per cent. In the Chicago area the rate is 84½ per cent, not quite as high as was forecast, the leading interest there having reduced output two points. In the Ohio Valleys, where the Youngstown Sheet & Tube plant has regained the production rate in effect before the strike, with Republic Steel plants also on a higher level, the average has risen from 75 to 77 per cent, but the Cleveland-Lorain rate has declined from 80 to 43 per cent because of the shutting down of the Lorain works of the National Tube Co. this week for vacations. At Detroit, the Great Lakes Steel Corp. has put on two open hearths that were off last week, and is running at 100 per cent, while the Ford steel plant is unaffected by the shutdown of automobile production. At Ensley, Ala., a sharp curtailment in steel output reflects the virtual completion of rail orders.

For the country as a whole the rate of ingot output this week is estimated at 82 per cent, down one point from last week, but the resumption of activity next week at Lorain, Ohio, will bring a rise in the average unless there are further curtailments elsewhere, at present unforeseen. The Republic Steel Corp. has started two additional blast furnaces at its Corrigan, McKinney plant in Cleveland and now has all of its Ohio blast furnaces in operation, while its steel-making rate in Ohio is at 64 per cent and is expected to go higher.

THE steel scrap market continues to reflect an improved outlook and an apparent scarcity of old material. Surprisingly, the Pittsburgh market is not advancing as rapidly as other sections. Scrap has gone up $1 to $2 at Cleveland, $1 to $1.50 at Buffalo and $1 at Detroit. These centers are not included in THE IRON AGE composite scrap price, which has risen 67c. to $19.17, based on advances of $1.50 at Chicago, 50c. at Pittsburgh and an unchanged price at Philadelphia. The Pittsburgh price range of $19.75 to $20.25 for No. 1 heavy melting steel appears to be out of line with advances in other districts and therefore may be headed higher.

SUBSTANTIAL inquiries for semi-finished have been cabled here from Great Britain, but the closing of business is hindered by American prices, which are higher than some British mills can pay, since their prices for finished products are fixed. American mills are generally quoting our domestic prices on both semi-finished and finished steel to Britain, although premiums of $5 a ton or more are obtainable from the Far East. Excepting Great Britain, the volume of export inquiry for steel has declined.

. . . PITTSBURGH . . .

. . . Carnegie-Illinois reaffirms present prices for fourth quarter, excepting galvanized sheets and "some other items."

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. . . Ingot output off one point to 85 per cent; one point higher at Wheeling.

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. . . Bookings of steel are below June volume; steel scrap moves up 50c a ton.

PITTSBURGH, July 20. — The Carnegie-Illinois Steel Corp. today (Tuesday) announced that present prices on principal rolled products are reaffirmed for the fourth quarter. An exception was made of galvanized sheets and "some other items." The announcement read as follows:

"Carnegie - Illinois Steel Corp. announces that present prices on principal rolled products, including bars and small shapes, structural shapes, plates, tin plate and other tin mill products, strip, sheets, sheet piling, standard and light tee rails and accessories, car and locomotive axles, solid wrought steel wheels and semi-finished products, for delivery and consumption in the United States during the fourth quarter, i. e., on or before Dec. 31, 1937, are reaffirmed. Exceptions are made in the case of galvanized sheets and some other items, announcement of which will be made later."

Production of steel ingots in the Pittsburgh district is off one point to 85 per cent of capacity, in line with the seasonal dullness which has been reflected in lighter bookings of finished steel products. Output in the Wheeling district is up one point to 96 per cent of capacity. Last year at this time the Pittsburgh district was operating at only 66 per cent of capacity.

The volume of incoming business has fallen off. Aggregate bookings of Pittsburgh mills so far this month are approximately 23 per cent below the volume booked in the comparable period in June. Total new business in the past week has been off only slightly from the previous period.

Since mill backlogs are reduced in most lines and the delivery situation nearer to normal, some consumers have been preferring to order in closer relation to their actual requirements. As a whole, the decline this summer has been less than expected.

Prospects for the fourth quarter appear very bright, with considerable business already entered on mill books, principally in sheets, for shipment at the prices ruling then.

American Bridge Co. has been awarded 2800 tons of shapes for railway facilities for the San Francisco-Oakland Bay bridge.

Total sheet specifications have declined in the past week, the recession being attributed to seasonal influences for the most part.

Tin plate operations are 96 to 98 per cent, up one to three points from the level of the previous week.

Pig Iron

From present indications, pig iron shipments in this district in July will closely approximate or slightly exceed the June movement. Spot buying has been quiet, but in some quarters it is believed an increasing volume of this business may be noted in the near future, supplies of certain consumers having dwindled to a low point. Export obligations generally are well cleaned up while current foreign inquiry is light. From the standpoint of the movement of furnaces in blast, operations compare favorably with the peak period of this year. Producers this month will be able to replenish their badly depleted stocks.

Semi-Finished Steel

Semi-finished steel specifications in the past week have receded somewhat from the previous period, but total tonnages booked compare favorably with the recent weekly averages. The heaviest movement involved sheet and tin bars, and demand for skelp continues to hold up well.

Bolts, Nuts and Rivets

With the seasonal falling off in new business, which has been considerably below shipments, backlogs are now diminished. Both general and automotive demand have lacked strength in the last few days and it appears the recession may continue slightly further before the bottom is reached. There is nothing unexpected in the current situation, however, nor is it any more out of the ordinary than at this time in previous years. Requirements of a few miscellaneous users are fairly steady while shipments to farm equipment interests generally are better than usual in mid-July. Consumption of rivets by structural fabricators is lighter. Already some ordering has come through for 1938 automobiles, but the total amount is not large.

Bars

In hot rolled bars, deliveries have been improving steadily, although in certain sizes some of the producers in this district are unable to make promises short of four weeks. The tapering in automotive production has been the largest single factor contributing to the easier tendency, while other consumers are satisfied to order in closer proportion to their actual needs. While shipment to parts makers and automotive manufacturers are light pending the start of production for 1938 models, the tractor and farm equipment field is a leading user and some jobbers have been ordering moderately heavier. A few railroad car shops, forging concerns and manufacturers of road-making equipment remain busy.

Cold-Finished Bars

Incoming business remains light, but under the impetus of the expected gradual increase in automotive parts makers specifications, the July volume is likely to compare favorably with June. Direct orders have been infrequent from automobile manufacturers for 1938 models, although a number of orders were placed late in June to round out the production of 1937 series. Cold finished shipments to

A Comparison of Prices

Market Prices at Date, and One Week, One Month, and One Year Previous; Advances Over Past Week in Heavy Type, Declines in Italics

Rails and Semi-finished Steel

Per Gross Ton:	July 20, 1937	July 13, 1937	June 22, 1937	July 21, 1936
Rails, heavy, at mill	$42.50	$42.50	$42.50	$36.37½
Light rails, Pittsburgh	43.00	43.00	43.00	35.00
Rerolling billets, Pittsburgh	37.00	37.00	37.00	30.00
Sheet bars, Pittsburgh	37.00	37.00	37.00	30.00
Slabs, Pittsburgh	37.00	37.00	37.00	30.00
Forging billets, Pittsburgh	43.00	43.00	43.00	37.00
Wire rods, Nos. 4 and 5, P'gh	47.00	47.00	47.00	38.00
	Cents	Cents	Cents	Cents
Skelp, grvd. steel, P'gh, lb.	2.10	2.10	2.10	1.80

Finished Steel

Per Lb.:	Cents	Cents	Cents	Cents
Bars, Pittsburgh	2.45	2.45	2.45	1.95
Bars, Chicago	2.50	2.50	2.50	2.00
Bars, Cleveland	2.50	2.50	2.50	2.00
Bars, New York	2.78	2.78	2.78	2.30
Plates, Pittsburgh	2.25	2.25	2.25	1.90
Plates, Chicago	2.30	2.30	2.30	1.95
Plates, New York	2.53	2.53	2.53	2.19
Structural shapes, Pittsburgh	2.25	2.25	2.25	1.90
Structural shapes, Chicago	2.30	2.30	2.30	1.95
Structural shapes, New York	2.5025	2.5025	2.5025	2.16¼
Cold-finished bars, Pittsburgh	2.90	2.90	2.90	2.25
Hot-rolled strips, Pittsburgh	2.40	2.40	2.40	1.95
Cold-rolled strips, Pittsburgh	3.20	3.20	3.20	2.60
Hot-rolled annealed sheets, No. 24, Pittsburgh	3.15	3.15	3.15	2.50
Hot-rolled annealed sheets, No. 24, Gary	3.25	3.25	3.25	2.60
Sheets, galv., No. 24, P'gh	3.80	3.80	3.80	3.20
Sheets, galv., No. 24, Gary	3.90	3.90	3.90	3.30
Hot-rolled sheets, No. 10, Pittsburgh	2.40	2.40	2.40	1.95
Hot-rolled sheets, No. 10, Gary	2.50	2.50	2.50	2.05
Cold-rolled sheets, No. 20, Pittsburgh	3.55	3.55	3.55	3.05
Cold-rolled sheets, No. 20, Gary	3.65	3.65	3.65	3.15
Wire nails, Pittsburgh	2.75	2.75	2.75	2.10
Wire nails, Chicago dist. mill	2.80	2.80	2.80	2.15
Plain wire, Pittsburgh	2.90	2.90	2.90	2.40
Plain wire, Chicago dist. mill	2.95	2.95	2.95	2.45
Barbed wire, galv., P'gh	3.40	3.40	3.40	2.60
Barbed wire, galv., Chicago dist. mill	3.45	3.45	3.45	2.65
Tin plate, 100-lb. box, P'gh	$5.35	$5.35	$5.35	$5.25

On export business there are frequent variations from the above prices. Also in domestic business, there is at times a range of prices on various products, as shown in our detailed price tables.

Pig Iron

Per Gross Ton:	July 20, 1937	July 13, 1937	June 22, 1937	July 21, 1936
No. 2 fdy., Philadelphia	$25.76	$25.76	$25.76	$21.3132
No. 2, Valley furnace	24.00	24.00	24.00	19.50
No. 2, Southern Cin'ti	23.69	23.69	23.69	20.2007
No. 2, Birmingham†	20.38	20.38	20.38	15.50
No. 2, foundry, Chicago*	24.00	24.00	24.00	19.50
Basic, del'd eastern Pa.	25.26	25.26	25.26	20.8132
Basic, Valley furnace	23.50	23.50	23.50	19.00
Malleable, Chicago*	24.00	24.00	24.00	19.50
Malleable, Valley	24.00	24.00	24.00	19.50
L. S. charcoal, Chicago	30.04	30.04	30.04	25.2528
Ferromanganese, seab'd carlots	102.50	102.50	102.50	75.00

†This quotation is subject to a deduction of 38c. a ton for phosphorus content of 0.70 per cent or higher.
*The switching charge for delivery to foundries in the Chicago district is 60c. per ton.

Scrap

Per Gross Ton:				
Heavy melting steel, P'gh	**$20.00**	$19.50	$18.25	$14.25
Heavy melting steel, Phila.	19.25	19.25	17.25	12.25
Heavy melting steel, Ch'go	**18.25**	16.75	15.75	13.25
Carwheels, Chicago	**19.25**	18.25	18.25	13.50
Carwheels, Philadelphia	19.75	19.75	19.75	14.25
No. 1 cast, Pittsburgh	19.25	19.25	18.25	14.75
No. 1 cast, Philadelphia	20.25	20.25	20.25	14.25
No. 1 cast, Ch'go (net ton)	**15.75**	15.25	15.25	12.00
No. 1 RR. wrot., Phila.	19.75	19.75	19.75	14.75
No. 1 RR. wrot., Ch'go (net)	**16.50**	15.50	14.50	11.50

Coke, Connellsville

Per Net Ton at Oven:				
Furnace coke, prompt	$4.35	$4.35	$4.60	$3.50
Foundry coke, prompt	5.00	5.00	5.25	4.00

Metals

Per Lb. to Large Buyers:	Cents	Cents	Cents	Cents
Electrolytic copper, Conn.	14.00	14.00	14.00	9.75
Lake copper, New York	14.12½	14.12½	14.125	9.87½
Tin (Straits), New York	**60.375**	60.00	55.65	43.75
Zinc, East St. Louis	7.00	7.00	6.75	4.80
Zinc, New York	7.35	7.35	7.10	5.17½
Lead, St. Louis	5.85	5.85	5.85	4.45
Lead, New York	6.00	6.00	6.00	4.60
Antimony (Asiatic), N. Y.	**15.00**	14.75	14.75	13.00

The Iron Age Composite Prices

	Finished Steel	Pig Iron	Steel Scrap
July 20, 1937	2.605c. a Lb.	$23.25 a Gross Ton	$19.17 a Gross Ton
One week ago	2.605c.	23.25	18.50
One month ago	2.605c.	23.25	17.08
One year ago	2.159c.	18.84	13.25
	Based on steel bars, beams, tank plates, wire, rails, black pipe, sheets and hot-rolled strip. These products represent 85 per cent of the United States output.	Based on average of basic iron at Valley furnace and foundry irons at Chicago, Philadelphia, Buffalo, Valley and Southern iron at Cincinnati.	Based on No. 1 heavy melting steel quotations at Pittsburgh, Philadelphia and Chicago.

	Finished Steel High	Finished Steel Low	Pig Iron High	Pig Iron Low	Steel Scrap High	Steel Scrap Low
1937	2.605c., Mar. 9	2.330c., Mar. 2	$23.25, Mar. 9	$20.25, Feb. 16	$21.92, Mar. 30	$17.08, June 15
1936	2.330c., Dec. 28	2.084c., Mar. 10	19.73, Nov. 24	18.73, Aug. 11	17.75, Dec. 21	12.67, June 9
1935	2.130c., Oct. 1	2.124c., Jan. 8	18.84, Nov. 5	17.83, May 14	13.42, Dec. 10	10.33, April 23
1934	2.199c., April 24	2.008c., Jan. 2	17.90, May 1	16.90, Jan. 27	13.00, Mar. 13	9.50, Sept. 25
1933	2.015c., Oct. 3	1.867c., April 18	16.90, Dec. 5	13.56, Jan. 3	12.25, Aug. 8	6.75, Jan. 3
1932	1.977c., Oct. 4	1.926c., Feb. 2	14.81, Jan. 5	13.56, Dec. 6	8.50, Jan. 12	6.43, July 5
1931	2.037c., Jan. 13	1.945c., Dec. 29	15.90, Jan. 6	14.79, Dec. 15	11.33, Jan. 6	8.50, Dec. 29
1930	2.273c., Jan. 7	2.018c., Dec. 9	18.21, Jan. 7	15.90, Dec. 16	15.00, Feb. 18	11.25, Dec. 9
1929	2.317c., April 2	2.273c., Oct. 29	18.71, May 14	18.21, Dec. 17	17.58, Jan. 29	14.08, Dec. 3
1928	2.286c., Dec. 11	2.217c., July 17	18.59, Nov. 27	17.04, July 24	16.50, Dec. 31	13.08, July 2
1927	2.402c., Jan. 4	2.212c., Nov. 1	19.71, Jan. 4	17.54, Nov. 1	15.25, Jan. 11	13.08, Nov. 22

the Ford plants having been well cleaned up, the recent shutdown of this manufacturer is not reflected to the extent that might be expected in this district. Requirements of textile machinery manufacturers have been outstanding, while demand is fair from such sources as washing machine manufacturers and a few other lines.

Reinforcing Bars

Both new and closed projects requiring concrete, reinforcing bars have been numerous recently. A factory building in Richmond, Va., will require approximately 1000 tons of bars and many other private projects requiring from 500 to 1000 tons are current.

Steel Sheet Piling

Prospects for future business in steel sheet piling appear favorable. Among new inquiry in this district recently has been approximately 8000 tons of sheet and Z piling for export. Meanwhile, deliveries have shown considerable improvement.

Plates and Shapes

Requirements of shape fabricators have been moderately lighter recently. Demand for plates, however, has been well maintained with ship-building interests, tank fabricators and other consumers active. As a result of recent large orders, crane manufacturers now have heavy backlogs and will be more active than in some time. Order backlogs in plates of eight to ten weeks are common in this district. Among recent structural awards were 2800 tons for railway facilities for the San Francisco-Oakland Bay bridge placed with American Bridge Co., Pittsburgh, and 1300 tons for the Chickamauga and Guntersville dams, Tennessee Valley Authority, placed with Duffin Iron Co. Spillway gates for the Chickamauga and Guntersville dams at Pickwick Landing will require 4000 tons of shapes. Corning Glass Works, Corning, N. Y., will require 1300 tons for expansion of its buildings.

Sheets

Total sheet specifications in the past week have declined somewhat from the previous period. For the most part the recession is attributed to seasonal influences. Orders for cold reduced sheets on the other hand were a trifle better owing to a pickup in demand from refrigerator manufacturers. There is some evidence that automotive makers may not start production on 1938 models as soon as was anticipated. This contention is borne out by the fact that some reservations for sheets have been withdrawn. Meanwhile, backlogs on all grades of sheets with the exception of cold reduced are easier with the leading interest promising hot rolled in 18 weeks and galvanized and hot rolled annealed in 19 to 20 weeks.

Tubular Goods

The volume of new business has declined in tubular goods, but mills have backlogs ranging around six to eight weeks and are finding it difficult to make any great inroads. Demand for oil-country goods has been lighter in the last few days, but is still fairly strong with drilling going forward with substantially the same rate as in other recent weeks. Requirements for pipe for residential and commercial building have been less than expected, however. Mechanical tubing and boiler tubes are in somewhat better demand than anticipated but line pipe has been quiet.

Wire Products

Specifications for manufacturers' wire have receded, although a moderate amount of activity remains and backlogs of some mills in this district continue to be comfortable. The disposition of consumers to hold buying to actual needs and the curtailment in automotive requirements combined with customary seasonal dullness are the principal factors responsible for the current easier tone. A few releases from the automotive industry for 1937 models helped bolster bookings in the last few weeks but tonnage from parts makers for 1938 production has been light. Manufacturers' wire is more active than merchant products, which can generally be expected at this time of year. There has been a slight increase in demand from jobbers but the trend is irregular.

Railroad Buying

In railroad equipment circles it is generally believed buying will either materialize soon or not at all, in order for the carriers to obtain cars in time to be of benefit to them late this year. The threat of increasing financial burdens apparently has forced the roads to proceed slowly. Rail mills have fairly large backlogs.

Tin Plate

Operations of tin plate mills may be estimated at 96 to 98 per cent, up one to three points from the previous week. In this district the rate is slightly higher than the national average, but reduced from the level which prevailed throughout the spring and first few days of July. Producers continue under heavy pressure from packers for shipments while the movement for general line cans is well maintained. Consumers' stocks are depleted. The fruit and vegetable pack is exceptionally heavy this year in many sections, which accounts for much pressure being exerted, combined with the fact that production of tin plate was lower when plants were closed by strikes. During the past week it was reported that a local brewery had encountered difficulty in obtaining cans.

Strip

Because it appears that changes in the 1938 automobiles may not be as extensive as usual, it has been difficult for producers to estimate how much of the automotive tonnage this month has been for 1938 models and how much has been to complete manufacture of 1937 cars. Ordering of strip steel from this industry, a major consumer, has been light, although by no means entirely lacking. Meanwhile, fairly steady demand comes from the electrical equipment industry and manufacturers of a few small automobile accessories. Deliveries being easier, consumers are not worried over their immediate needs.

Coal and Coke

Operations in the Connellsville beehive coke district show no great change. Spot demand remains light and many ovens are still operating only part of the week. Principal attention recently has been directed toward the coal mines owned by some of the major independent steel companies. A few of these shafts have been reopened after more than one month's shutdown as a result of the labor situation. Republic Steel Corp. was successful in resuming operations at its Davidson and Trotter shafts when the back-to-work movement became so strong that pickets were unable to halt the returning miners.

Boats To Be Named For U. S. Steel Men

THE four iron ore boats that are being built for the Pittsburgh Steamship Co., subsidiary of the U. S. Steel Corp., will be named after U. S. Steel executives. Two of the vessels being built by the American Shipbuilding Co. at its Lorain plant will be named the W. A. Irvin and the Governor Miller, for the president and for Nathan L. Miller, chief counsel of the corporation. The two boats under construction at the Ecorse yards of the Great Lakes Engineering Works will be named for John Hulst and Ralph H. Watson, U. S. Steel vice-presidents. The four boats are scheduled to be completed for the 1938 season of navigation.

. . . . CHICAGO . . . .

. . . Operations rise to 84½ per cent as strike-affected plants get back to normal.

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. . . Sales of steel rise slightly; plants that had no strike show gain in backlogs.

o o o

. . . Automobile buying for 1938 models begun; steel scrap up $1.50 a ton.

CHICAGO, July 20.—With the full-time resumption of operations by Youngstown Sheet & Tube Co. here, ingot output has increased to 84½ per cent of capacity, up five points but off slightly from our forecast last week because of an unexpected decrease of 2 points in the operating rate of Carnegie-Illinois Steel Corp. All producers in this district are now back to normal, and the rate of operations in the future will depend upon the business conditions in this territory rather than the dictates of labor organizers.

Sales this week are up slightly over last week, and orders against old contracts continue at about the same rate as previously. Backlogs are increasing or decreasing, depending upon whether the company in question was affected by the strike in May and June. Backlogs of plants that had strikes will probably be found to be descending, because of company anxiety to fill back orders which were allowed to remain on the books during the strike period. These companies are not so actively soliciting business now as they might because of that condition. In other mills where labor difficulties were not a factor backlogs are increasing slightly.

The farm equipment trade continues the heaviest single consumer in the district, and is actively specifying against contracts for plates, sheets, bars, strip, shapes and wire. Operations in this field, including makers of both tractors and implements, appear to have increased somewhat in the past week, and it now seems certain that the slight letdown predicted for the implement industry sometime this month will not be seen, and that peak production will be maintained.

Buying for 1938 automobile models has definitely started here, with Nash and Studebaker reported to have purchased for first runs of about 20,000 cars each. Chrysler is also understood to have placed steel for its early requirements. Pig iron sellers state that the Nash foundry is taking considerable iron, and that another foundry which specializes in automobile castings is taking large tonnages also, although its current production is light because of the intermodel recession.

Jobbers are reported actively replacing stocks which were depleted during the strike shutdowns. From some earnings reports which have been issued recently it appears that unusually good business was enjoyed by the jobbing trade when the mills were closed.

There is a possibility that the Madison, Ill., works of the American Car & Foundry Co. may open next month to begin work on 1000 Union Pacific cars ordered some time ago.

In spite of a $1 increase last week, scrap bounded sharply upward again this week and is now quoted at $18 to $18.50, a rise of $1.50. Comparable boosts were given other grades. Broker offerings even now are said to be higher than the quoted price.

Pig Iron

Shipments are proceeding at a fairly even pace, some sellers reporting increases over last month and others decreases, with the balance perhaps swinging slightly in favor of a reduction. Automobile foundry shutdowns pending the model changeovers are considered responsible for this curtailment of shipments. When the automobile plants begin their 1938 production in earnest, demand for iron is expected to be large and continuous. Already Nash and Studebaker foundries are operating at high rates, and shipments to these two plants are heavy. Some letdown has been noticed in jobbing foundries, and this tendency is expected to continue over the summer.

Wire and Wire Products

Demand for and shipments of manufacturers' wire are about the same as the average of the past few weeks. The implement and tractor manufacturers remain heavy consumers while the automobile trade is less active at present during the change from 1937 to 1938 models. Automobile bolt makers, who are normally good wire customers, seem to be waiting for the 1938 model changes, if any, before going ahead with their own production.

Reinforcing Steel

Bids have been received on the post office garage job, which will consume about 2000 tons of bars, but an award is not expected for several weeks. Inland Steel Co. was awarded 300 tons for a Federated Metals building in Hammond, Ind. No other awards of more than 100 tons were reported, nor were there any inquiries of that size. A continued lull is anticipated for the remainder of the summer. Until the post office garage bars are purchased, the strength of the price structure will probably remain uncertain, as nothing is now in sight which will afford a test of the market.

Plates

Deliveries are still no better, about 12 weeks being required for shipment. New buying from railroads is practically non-existent, but specifications against old orders are still being received, and car shops continue busy. Carloadings last week were the highest in some time, and if this trend continues, new car buying in the fall is certain. Specifying from the farm equipment trade is good and gives promise of holding at its present high level throughout the summer. Colorado Fuel & Iron Co. is building a pipe line at its own plant to require about 1200 tons of plates and shapes.

Sheets

Sheet backlogs, with the exception of the cold rolled grades, are as extended as ever and run into October in many cases. Cold rolled, because of a temporary cessation in automobile buying, is obtainable late in August and early September. Some buying from that industry is under way already. Nash, Studebaker and Chrysler

having placed some tonnage for their first run of 1938 models. Fair quantities of sheets are also being taken by the farm equipment makers.

Bars

Deliveries are unchanged, from four to six weeks being quoted. Activity in the implement and tractor lines is undiminished, and new buying from automobile makers is expected momentarily.

Rails

No new buying has been reported or is in prospect. Continuation of forecasts of good crops lends strength to the possibility of further rail purchases in the fall, along with additional car building, as does the report of increased carloadings.

Structural Shapes

More activity is in evidence in the structural market this week than has been the case for the past month or so. Worden-Allen Co. was awarded the reconstruction of the International Harvester building which burned at Canton, Ill., two weeks ago, the job involving about 300 tons of shapes. The Lady Esther building in the Chicago Clearing district will take 450 tons, while a post office garage in Chicago will require about 1100 tons. Bids have been received for both of these last two projects. The Illinois bridge referred to last week will involve about 835 tons, bids to be taken July 23. A coaling station at Franklin, Ind., will take 500 tons, while a bridge at Denver will take 522 tons. The Austin Co. was awarded a building in Whiting, Ind., for the Federated Metals Division of American Smelting & Refining Co. Tonnage is indefinite but is believed to be about 1500 tons.

St.Louis Gas & Coke Hearing on July 29

HEARING on the application filed by G. B. Evans, trustee in bankruptcy for St. Louis Gas & Coke Corp., Granite City, Ill., for approval of proposed sale of the corporation's electric facilities to Granite City Generating Co., will be held in the offices of the Federal Power Commission in Washington, July 29. Generating facilities of St. Louis Gas & Coke Corp. consist of a steam-electric power plant rated at 15,000 kw., a 33,000 volt sub-station and various structures. Value of the equipment is appraised at $1,300,000.

. . . Awards of 6820 tons —11,700 tons in new projects.

AWARDS

Bennington, Vt., 153 tons, State road, to Northern Steel Co.

Kennebunkport, Me., 150 tons, bridge, Boston & Maine Railroad, to Bancroft & Martin.

Philadelphia, 950 tons, court house, to Sweets Steel Co.

New York, 1300 tons, Queens-East River Tunnel, to Bethlehem Steel Co.

Somerset County, Pa., 200 tons, State bridge at Quemahoning Shade and Stony Creek Townships, to National Building & Supply Co.

Franklin County, Pa., 150 tons, mesh, to Wheeling Corrugating Co.

Chester, Pa., 100 tons, plant addition, Scott Paper Co., to Bethlehem Steel Co.

Washington, 150 tons, Brentwood Village Corp. housing development, to Rosslyn Steel & Cement Co.

South Norfolk, Va., 620 tons, overpass, to Truscon Steel Co.

Fetterman, W. Va., 200 tons, bridge, T. A. Loving, contractor, to Hall Hodges, Inc., Norfolk, Va.

Louisville, 250 tons, grade elimination, to Laclede Steel Co.

Detroit, 700 tons, Veterans' Hospital, to Hausman Steel Co.

Cincinnati, 500 tons, viaduct, to Pollock Steel Co.

Whiting, Ind., 300 tons, Federated Metals Co. building, to Inland Steel Co.

Calexico, Cal., 474 tons, All-American Canal project, to Columbia Steel Co.

Phoenix, Ariz., 196 tons, Salt River project, to Colorado Fuel & Iron Co.

Canal Zone, 425 tons, Government work, to an unnamed bidder.

NEW REINFORCING BAR PROJECTS

New Britain, Conn., 100 tons, hardware manufacturing plant.

Cambridge, Mass., 475 tons, Massachusetts Institute of Technology, School of Architecture.

New York, 475 tons, Museum of Modern Art.

Brooklyn, 800 tons, sewer, contract 1, project 1; bids taken July 21.

Queens, N. Y., 480 tons, intercepting sewer.

West Point, N. Y., 1400 tons, bullion depository; bids July 29.

East Orange, N. J., 200 tons, reservoir; new bids being taken.

Buffalo, 175 tons, Black Rock harbor crossing for Buffalo Sewer Authority; bids July 23.

Philadelphia, 300 tons, Lit Brothers store at 69th Street; bids soon to McCloskey & Co., general contractor.

Carderock, Md., 5000 tons, experimental basin for Navy Department; bids taken July 21.

Richmond, Va., 1000 tons, factory building, Philip Morris & Co.

Toledo, Ohio, 100 tons, Libbey Glass Mfg. Co. warehouse.

Minneapolis, 390 tons, Minneapolis-St. Paul filtration building.

Detroit, 700 tons, Sears Roebuck & Co. store.

Chicago, 100 tons, Gazzola Drug & Chemical Co. warehouse addition.

Chicago, 1500 tons, post office garage; Lipman Construction Co., Chicago, low bidder on general contract.

. . . Seasonal recession not affecting mill operations on sheets.

CINCINNATI, July 20.—Sheet ordering the past week varied only slightly from the preceding period. The recent recession in demand reflects a general let-down in interest over the entire sheet consuming trade. Automobile business is not gaining appreciably for new models. Mills are still running at capacity to clear backlogs in anticipation of brisk demand in the fall. Schedules call for capacity output through the summer months on all items, with backlogs on galvanized sheets warranting capacity operations for longer period.

Open-hearth operations are down a few points as one interest withdrew another furnace for repairs. Thirty out of 34 open hearths are in operation against 31 last week.

A slow movement to cover pig iron requirements for the current quarter is discernible but heavy contracting still absent from the market. Despite the lower melt, indications are that consumers are rapidly reducing inventories and replenishment is becoming necessary. Shipment against unfilled orders is still brisk. Reflecting an easier melt, shipment of foundry coke tends downward. With most district users covered, new contracting is nil.

Figures on first half business in district warehouses disclosed a better than last year average, despite suspension during the January flood. Current business is slackening under warm weather influences.

United States District Judge Davis has continued the hearing on the modified plan of reorganization for the Scullin Steel Co., St. Louis, until Sept. 10. The continuance was at the request of counsel for the company.

. . PHILADELPHIA . .

. . . Average district rate up to 71 per cent.

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. . . Pennsylvania calls for bids on large culvert order.

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. . . Lukens signs with C.I.O.; Heintz closed by strike.

PHILADELPHIA, July 20.—For some time steel salesmen here have been concerned mostly with keeping their customers satisfied as regards to deliveries on old orders, but now they are scouting around again for new business, particularly for grades to fill out open spots on rolling schedules. All mills still have comfortable backlogs, despite the recent tendency for orders to ease off somewhat. This temporary lessening in consumer interest has aroused no concern on the part of sellers; for they can see ahead enough business to maintain current operations throughout the summer with almost certain likelihood of heavy fall demand keeping plants running close to capacity until the year's end.

Most district melters are operating at an unchanged pace, although Worth has added another furnace to cut down inroads into its ingot stock pile. The result is a one-point increase in the average district rate, which is currently estimated at 71 per cent of capacity.

The CIO called a sit-down strike at the Heintz Mfg. Co. plant last Wednesday, but an injunction forced members from the plant on Sunday. The plant still is completely shut down with pickets demanding a signed agreement with CIO and the discharge of certain AFL workers. R. W. Wolcott, president of Lukens Steel Co., has announced that his company has signed an agreement with the SWOC, the terms of which apply only to members of that union.

Pig Iron

This market is drifting along with not a great deal of talk about higher prices and only a minimum amount of interest being displayed by consumers. However, sellers are showing no concern over the future. There is little or no tendency to prevail upon customers to take on additional commitments now inasmuch as all furnaces are confident that their entire output over the remainder of the year will be quickly assimilated, at price levels either equivalent to or better than those prevailing today.

Shapes and Bars

With only a moderate amount of building under way in this area, fabricators are not so busy as they usually have been during this time of the year. Structural awards of the week aggregated 1100 tons, of which 660 tons went to Bethlehem Steel Co. for buildings at Williamsport and Philadelphia, and the remainder supplied by Belmont Iron Works for a building at Coatesville, Pa. The more important projects now pending include five underpasses for Pennsylvania Railroad, and a large store for Lit Brothers in the 69th Street section of Philadelphia, for which shapes requirements will total about 750 tons and bar requirements are estimated at 300 tons. The only other bar project of any moment calls for an estimated 5000 tons for a Navy Department experimental basin at Carderock, Md.

Sheets and Plates

Fabricators here are figuring on one of the largest culvert pipe inquiries which has come up for several years. About 40 miles is involved, and bids are due July 23 to the Commonwealth of Pennsylvania. Delivery will extend over the remainder of the year and over 6000 tons of corrugated galvanized sheets will be required to fill the order. General sheet business has tended to ease off more during the past week, and mill promise sheets have been reduced an average of a week or 10 days. Some mills in this immediate district can now deliver certain gages and sizes of hot rolled and hot rolled annealed stock within two to three weeks, although some of the larger western mills cannot promise anything under 15 weeks or more. Local autobody stamping plants have entered orders for sizable quantities of steel for 1938 models, but this demand will not reach a peak for at least one month yet. Plate demand is not very encouraging and more than one maker is cutting sharply into backlogs. There is still enough business on books, however, to keep local plants busy for the next month, at which time a strong revival in demand is anticipated.

Imports

The following iron and steel imports were received here during the past week: 70 tons of chrome ore, 25 tons of manganese ore and 14 tons of structural shapes from France; 1945 tons of chrome ore from Greece; 2500 tons of chrome ore from Turkey; 124 tons of steel bands, 227 tons of steel bars and 441 tons of structural shapes from Belgium.

. . . BOSTON . . .

. . . Pig iron buying light; foundry backlogs small.

BOSTON, July 20.—Little pig iron was contracted for the past week, some furnace representatives not obtaining a single order. Due to the uncertainty regarding the future among foundrymen, there is no indication of a resumption of pig iron buying the remainder of July, at least, unless there is a decided pickup in the castings business, which appears unlikely. Most of the largest melters, particularly those located in Connecticut, are maintaining a five-day schedule, but have no large backlogs of orders.

Lettings for steel fabricating are mostly in less than 100-ton lots. The Reed & Prince Mfg. Co., Worcester, Mass., plant, closed May 25 by a CIO strike, reopened the past week following a court ban on picketing. At the end of the reopening day the union abandoned the strike. An AFL affiliate has started a drive to unionize the Bath Iron Works Corp., Bath, Me., employing 1700. Two Navy destroyers are under construction there.

Last week a cargo of 8800 tons of pig iron left this port for Japan, the largest pig iron cargo ever exported from Boston, and the last of the 25,000 tons sold to that country by Mystic Iron Works. Providence has awarded 131 tons of regular and special size strip steel to L. E. Zurbach Steel Co., Cambridge, Mass., for about $11,000.

. . BIRMINGHAM . .

. . . *Operations curtailed slightly but rate is still high.*

BIRMINGHAM, July 20. — Midsummer finds Birmingham iron and steel operations steadily holding at high levels. Backlogs have been sufficient to maintain production in the face of seasonal market recessions. However, current buying is fair. Birmingham mills still have good backlogs and it looks as if the summer will be an active one all the way through. The outlook for fall is encouraging on account of the fine crops in prospect.

Open-hearth operations were curtailed somewhat last week, when three units were taken off at Ensley. Tennessee Coal, Iron & Railroad operated eight out of nine at Fairfield and two at Ensley. Republic Steel continued with all six at Gadsden. The schedule this week will be about the same. Blast furnace activities are unchanged, with all 18 in operation.

Tennessee Coal, Iron & Railroad Co. has purchased a one-half interest in the Potter Ore Co., owner of a large holding of ore properties. The company was organized in 1907 with Republic Steel as a joint owner.

. . . . ST. LOUIS . . . .

. . . *Wabash to buy rails and repair 958 cars.*

ST. LOUIS, July 20. — United States District Judge Davis has authorized the Wabash Railroad to buy 6500 tons of 112-lb. rails, to purchase and apply truck springs and make general repairs to 665 box cars, and steel side truck frames, and make general repairs to 293 hopper cars, and to apply rail fastenings for the replacement of 80-lb. sawn rails.

A fair amount of orders are being received for finished steel. Consumers and jobbers who bought early in the year at low prices are beginning to reach the bottom of their stocks and are reordering. A pick-up in buying of sheets by stove plants is noted. New projects requiring sizable tonnages of structural shapes or reinforcing bars are scarce.

Shipments of pig iron for July are estimated to be between 20 and 25 per cent ahead of June, but very little new business is being booked, since prices are unchanged. There was a slight let-up in melt during the week in some sections of the stove belt on account of the heat. Jobbing foundries are experiencing a slight recession in business. However, there has been no let-up in operations in the agricultural implement business.

CANADA

. . . *Iron and steel market in summer lull.*

TORONTO, Ont.—General conditions in iron and steel markets show practically no change. Consumers are interested only in small lots for spot requirements. Automobile plants have curtailed activities pending the starting of work on new car models about Sept. 1. The mining industry is quiet, the usual extensive buying from this source having largely dried up owing to difficulty in financing new operations. Officials of the various steel companies, however, express the opinion that business will return to its former high average immediately after the vacation season. Prices in all materials are holding unchanged but firm.

Merchant pig iron sales continue steady, with all orders for spot delivery. Pig iron production continues at its high rate of about 70 per cent, being basic iron for further use of producing firms. Foundry and malleable iron is being piled for future sale. Imports are falling off and are confined to special grades in small lots from the United States. Prices are unchanged.

Trading in iron and steel scrap is without special feature. Local dealers state that there is a good call for machinery cast, stove plate and heavy melting steel, and they are forced to draw on yard stocks to fill orders. Other grades are spotty with no special interest. Automobile scrap continues to pile up and some shipments have been made to the United States recently. Dealers state that new offerings of scrap are still small and they are unable to take care of all demands for cast scrap and stove plate. Lists are unchanged.

. . CAST IRON PIPE . .

Trenton, N. J., plans pipe lines from West Trenton waterworks station along Scotch Road to new plant of Ternstedt Mfg. Co. in Ewing Township, for water supply. Cost about $80,000. Financing is being arranged. Frank M. Winder is director of water department.

Charlotte, N. C., asks bids until July 27 for pipe lines for water system, to supplement present lines for doubling capacity. Cost about $150,000. J. B. Marshall is city manager in charge.

Jackson, Miss., asks bids until Aug. 3 for 12-in. pipe for main water line; also for elevated steel tank and tower and chlorinator unit. Cost about $35,000. J. H. Fewell is superintendent of water department.

Cedar Rapids, Iowa, plans pipe lines for water system in Frontier Park district. Fund of $75,000 is being arranged through Federal aid for this and other improvements in area noted.

Stephenson, Mich., plans about 4400 ft. for water system; also 50,000-gal. steel tank and other waterworks installation. Fund of $80,000 is being arranged through bond issue and Federal aid. Shoecraft, Drury & McNamee, Ann Arbor, Mich., are consulting engineers.

Edgar, Wis., plans pipe lines for water system; also other waterworks installation. Financing is being arranged. Consoer, Townsend & Quinlan, 205 West Wacker Drive, Chicago, are consulting engineers.

Tenino, Wash., plans pipe lines for extensions in water system, including replacements in present lines; also other waterworks installation. Cost about $60,000. Financing has been arranged in part through Federal aid. Parker & Hill, Smith Tower Building, Seattle, are consulting engineers.

London Utilities Co., London, Ky., has plans for 6925 ft. of 6-in. and 1825 ft. of 4-in. for extensions and replacements in water system.

Hudson, Mich., plans pipe lines for extensions and improvements in water system. Fund of $18,000 has been arranged for this and other waterworks installation. Pate & Hirn, Michigan Building, Detroit, are consulting engineers.

Oklahoma City, Okla., plans pipe lines for extensions in water system in various parts of city. Cost over $125,000. M. B. Cunningham is city engineer.

RAILROAD BUYING

Roberval & Saguenay has purchased one 2-8-0 type locomotive from Canadian Locomotive Co.

Wabash has been authorized to buy and apply truck springs for 665 box cars, and steel side truck frames for 293 hopper cars and to make general repairs thereto.

American Car & Foundry Motors Co. has received the following orders for motor coaches: Five for Aronimink Transportation Co. (Philadelphia-Suburban Transportation Co.), Philadelphia; two for Scranton Transit Co., Scranton, Pa.; one for Southeastern Greyhound of Alabama, Lexington, Ky.; three for Boston, Worcester & New York Street Railway, Framingham, Mass., and one for Norfolk Southern Bus Corp., Norfolk, Va.

RAILS AND TRACK SUPPLIES

Wabash has been authorized to buy 6500 tons of 112-lb. rails and fastenings for replacement of 80-lb. sawn rails.

. . . CLEVELAND . . .

. . . Curtailment of operations caused by strikes being rapidly overcome.

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. . . Youngstown Sheet & Tube back to peak production attained before shutdown.

o o o

. . . Republic has all Ohio blast furnaces on; demand for finished steel is light.

CLEVELAND, July 20.—Ingot output gained two points in the Youngstown district to 77 per cent of capacity this week. Republic Steel Corp. stepped up its operation two points to 64 per cent of capacity in that district and the Youngstown Sheet & Tube Co. gained three points and is now back to the peak operation it reached before the strike. In the Cleveland-Lorain district, the Lorain works of the National Tube Co. is shut down this week for a week's vacation, temporarily reducing the ingot output in this district to 43 per cent of capacity, a 37-point decline. Three blast furnaces continue in operation in Lorain, one being banked for the week.

Evidence of curtailment of operations resulting from the strike is rapidly disappearing. Republic started up two blast furnaces at its Corrigan, McKinney plant in Cleveland over the week-end and is now operating all of its Ohio furnaces. Its Ohio mills are operating at a sufficient capacity to meet the current demands for its products. Republic's N. & G. Taylor plant at Cumberland, Md., and bar mill at Moline, Ill., are still shut down.

New demand for finished steel is light. However, the seasonal slump is no more than normal and belief is expressed that the volume of business will show no further falling off during the remainder of the summer. Sales this month are on about a par with those of June. Consumers are cutting into their stocks and most of the new business is in small lots. Semi-finished steel is inactive, but mills still have good backlogs. Bars are in slack demand and are available for July shipment. Sheet business was increased during the week by the purchase of considerable tonnage by the Ford Motor Co.

Scrap prices have risen from $1 to $2 a ton in the Cleveland and Youngstown districts, with the higher quotations established by consumer purchases.

Bars, Plates and Shapes

Hot rolled bars are in light demand, orders being confined to small lots from miscellaneous consumers. While buying for new models of automobiles is still very light, some business is coming from forge shops for making other products.

Activity in the construction field in this territory continues light. However, Cleveland contractors have taken two sizable fabricating jobs, one requiring 1500 tons for the Federated Metals Division of American Smelting & Refining Co., Whiting, Ind., and the other 1200 tons for the Corning Glass Works, Corning, N. Y. Reinforcing bars are moving fairly well in small lots. Mills have good backlogs in plates.

Pig Iron

Sales continue to be made in moderate volume, one producer selling 5000 tons during the week, 2000 tons to one consumer and smaller lots to other foundries. This business came from foundries that had not previously bought all the iron they needed for the third quarter. Furnaces still have good order books. Some are reducing and others increasing their stock piles. There is a seasonal decline in the melt by miscellaneous consumers, including jobbing foundries, and a slackening in operations by foundries making railroad equipment. A pick-up in orders is looked for soon from motor car foundries that are taking little iron at present.

Sheets

The Ford Motor Co., which inquired for sheets for making 250,000 cars estimated at 100,000 tons, has placed orders for approximately one-half of the quantity called for and will defer buying the remainder until after its plants resume operations following the vacation period which started this week. The business was distributed among several mills. Small lot orders continue to come from other motor car manufacturers for making new models. New demand in this territory is rather light. Stamping plants making automobile parts are not ordering material, evidently not as yet having received releases for parts for new models. There is a marked lack of uniformity in backlogs. Some mills can make shipments in two or three weeks on most grades, while others are filled up for the current quarter or longer.

Strip Steel

This product shows more activity than for several weeks. Some of the General Motors parts units made their first purchases of hot and cold rolled strip for new models, this business totaling a fair tonnage. Some tonnage also was placed by the Ford Motor Co. Miscellaneous demand continues light. With backlogs largely reduced fairly prompt deliveries can be secured on both hot and cold strip, although some mills are comfortably filled for the remainder of the quarter.

Iron Ore

Consumption of Lake Superior ore during June decreased 700,192 tons from May, the falling off being due to interruptions caused by strikes. The amount consumed last month was 4,639,733 tons. Number of furnaces in blast June 30 was 145, an increase of nine during the month. In May, 19 furnaces went out, most of which were banked because of the strike. Some other furnaces that shut down when the strike was in effect have resumed this month. Furnace stocks July 1 were 21,065,726 tons and dock stocks on that date were 3,329,253 tons, making a total on furnaces and docks of 24,394,979 tons, an increase of 2,441,144 tons over the amount at furnaces and docks July 1 last year. The dock

balance July 1 was 715,857 tons less than on the same date a year ago.

Receipts at Lake Erie ports during June were 7,562,078 tons and for the season up to July 1 were 16,086,497 tons as compared with 7,342,617 tons during the same period last year. Dock shipments from Lake Erie ports during June were 5,094,175 tons and for the season until July 1 were 11,969,304 tons, a gain of 5,637,712 tons over the same period last year. Total receipts at all lower Lake ports until July 1 were 22,390,435 tons.

British Steel Buying from America Hindered by Our Prices

LONDON, July 20 (By Cable).—The reduction of tariffs on steel products from non-cartel countries from 33 1/3 to 12½ per cent suggested the possibility of American importations. Isolated parcels have already arrived under exceptional circumstances, but generally American prices are not low enough so that business can be done on an economic basis.

British home trade price on sheet bars is £7, 15s.; steel bars, £12, 6d.; angles, £11, 6d., all delivered. Bars, angles less rebate 15s. American prices on these products delivered here are generally higher.

The British Federation is endeavoring to arrange an increase in the cartel quota of 200,000 tons for second half year delivery. Import duties may be revised in March next year. Despite holiday atmosphere, consumers are pressing for supplies and deliveries from works are still heavily in arrears.

Pig iron prices are expected to advance at the end of the year. Six Northeast furnaces have been blown in this year, but all this output is going direct into steel consumption. Heavy steel makers are wanting up to six months delivery and are refusing a portion of new orders.

The tin plate market is quieter, but prices are firm as mills are well booked. Unfilled orders are now over 6,500,000 base boxes. At the annual meeting of the Richard Thomas Co., Sir William Firth stated that the company's new Ebbw Vale steel and tin plate strip mill will be the most modern and efficient plant here and on the Continent. It will be equal to the best in America and capable of lower production cost than in America.

Black and galvanized sheet makers wanting steel are accepting only a portion of the business that is offered. The thin sheet cartel meets this week at Le Zoute, Holland.

United Kingdom exports of pig iron for June amounted to 9000 tons of which 50 tons went to United States. Total iron and steel exports amounted to 235,000 tons during June.

Continental steel export demand is improving, especially for bars and shapes, but long delays on deliveries are hindering expansion. Obligatory premiums are now incorporated in the official gold export prices.

Mesta Machine Co.'s Orders at High Point

MESTA MACHINE CO., Pittsburgh, reports that at the start of July its unfilled orders had reached a new high point at more than $24,000,000, against about $18,000,000 at the beginning of 1937 and $10,500,000 in mid-summer 1936.

The increase in new orders was assisted materially by the contract from Carnegie-Illinois Steel Corp. for the hot mill at the new Irvin works. This was the largest individual order ever booked by Mesta. Other important orders this year included a $5,000,000 contract from Japan and a large mill installation for John Summers Sons of England.

Mesta has been compelled to make additions to its plants and facilities. During the past year 20 per cent has been added to capacity through an expansion program and additional expansion will require expenditure of $1,000,000.

The company is working three turns.

Ford Riot Charges To Be Pressed

DETROIT, July 20.—Late labor developments in Detroit included the closing of another plant by its owner, and the decision of Common Pleas Judge Ralph W. Liddy that charges should be pressed against the Ford Motor Co. and eight men accused of "assault with intent to do great bodily harm less than murder" in the Ford riot of May 26. In the Ford case, at the conclusion of the formal examination before Judge Liddy, bonds of $500 for each of the accused men were set. The Ford Motor Co. furnished $3,500 for the release of seven, while the eighth defendant, Russel J. Edic, former newspaper circulation employee, had his bond furnished by Harry S. Toy, defense attorney. Toy had asked dismissal of the charges against the men on grounds of insufficient evidence. The judge denied his plea and an earlier one for dismissal on the ground that a corporation could not be guilty of assault. Other defendants are Ford employees identified in the beating of Walter E. Reuther, Richard Frankensteen and other UAW members. Fry, Nation's number one sitdown boss, is battling a UAW demand for a contract (see this week's *Assembly Line*). After demanding a show of responsibility from the union he has decided, he said, to close his plant and so notified 250 employees Tuesday.

. . . *Steel operations steady; bookings decline.*

BUFFALO, July 20.—Buffalo open-hearth operation remains steadfast with Bethlehem's Lackawanna plant operating 28; Republic Steel Corp., seven, and Wickwire-Spencer Steel Co., three.

The effect of the summer lull is being experienced in steel bookings, and most lines show a tendency to taper. Warehouse business has dropped off.

Pig iron producers report a satisfactory flow of orders, with shipments steady and regular against old orders.

A Buffalo concern will fabricate 200 tons of steel for a sludge disposal building for the Buffalo Sewer Authority. The sewer authority will take bids July 23 on reinforcing bar material for the Black Rock harbor crossing.

Ford Motor Co. has purchased 12 additional Westinghouse bell type furnaces for annealing automobile body stock. Each furnace will be rated at 230 kw., with a capacity for annealing two coils 52 in. in diameter, 48 in. in height, giving a total loading of 32,000 lb. per charge. This installation will give Ford a total of 38 bell annealing furnaces.

. . . . NEW YORK. . . .

. . . Many British inquiries received, but our prices are a bar.

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. . . Domestic steel buying at low ebb; shipments steady.

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. . . Prices reaffirmed for fourth quarter.

NEW YORK, July 20.—A good many inquiries for semi-finished and finished steel have been received here from Great Britain since that country reduced its duties on steel from non-cartel countries from 33½ to 12½ per cent, but not much business has resulted because of American prices. In practically all instances the minimum prices that American mills are quoting on British inquiries are our domestic quotations; some mills are asking premium prices, which are easily obtainable on shipments to the Far East. British mills are anxious to obtain sheet bars, but our domestic price of $37 plus freight, insurance, etc., brings the delivered cost in Britain to a point that makes it virtually impossible for British mills to make a profit, since their prices on the finished products are fixed. While export inquiries have fallen off, except from Great Britain, export prices in the world markets are still high, premiums of $5 or more a ton being frequently obtainable. For example, Japan has paid the equivalent of 2.55c. per lb., Pittsburgh, for plates, or $6 a ton over the Pittsburgh domestic price. Similar premiums have been obtained on other products.

Domestic steel buying in this area is probably at the lowest point in nearly a year. However, there is no interruption in the high rate of shipments, and some pressure is being brought to bear on mill offices to get out orders that have been on their books for some time, indicating that consumers have been eating into their steel inventories during the past month or so.

Plates and Sheets

New plate business is light. Openings have developed in mill schedules and delivery promises have been greatly improved on certain specifications. There has been little improvement as regards wide plates, however. Some orders have been reinstated by local shipyards recently reopened, but with heavily picketed yards and strong police details, no new orders have been issued from this source. No new railroad programs were announced during the past week. Large repair programs are expected by fall. Bids are due shortly on the baggage and diner cars for the new "Twentieth Century" and "Broadway Limited" trains for the New York Central and the Pennsylvania railroads.

Sheet orders remain in small volume, and the pressure for delivery is easing up. Some openings have developed on mill schedules, permitting shipment in three to four weeks, but there has been but small improvement in hot rolled grades. One representative reports his mill booked past the middle of October, with orders being accepted on the basis of price at the time of shipment.

Wire

Practically no change is reported. Orders continue in fair volume, but backlogs are down and on certain gages deliveries are prompt. Many sizes can be shipped in a week; others in two to three weeks.

Pig Iron

New business continues in moderate volume, with shipments against contracts occupying the present attention of producers. Blast furnace operations are maintained unabated and, while it is possible that certain producers have been able to build up stocks to some extent, the general position of pig iron supplies is described as tight. The average of foundry activity is at a lower level than in the previous week, but a slight increase is noted in the melt of heavy machinery foundries which are buying steadily. Export buying continues to be the cynosure of current market activity. Large numbers of inquiries are constantly circulating and, although all these do not result in actual ordering, they serve to indicate the extraordinary needs of Europe. Inquiries involving odd analyses and indefinite quantities from the small European countries are growing in volume and, though the individual tonnages are small, the aggregate of these proposals represents a substantial figure. There is considerable speculation over the possibility of a further decline in the value of the franc, making France a factor in the export field, but it is doubtful if France has sufficient surplus iron to take this advantage.

. . SAN FRANCISCO . .

. . . Steel market inactive; backlog still large.

SAN FRANCISCO, July 19.—The market in all forms of steel was inactive, with only five awards of more than 100 tons reported. Largest of these was 474 tons involved in the All-American Canal project at Calexico, Cal., to Columbia Steel Co. Colorado Fuel & Iron Co. took 196 tons called for in the Salt River reclamation project at Phoenix, Ariz.

Numerous small projects kept business nearly normal, however, and considerable backlogs of orders are yet to be filled.

A special election is to be held in Orange County, Cal., soon to vote on a $2,500,000 bond issue to cover the cost of the county's share of a $13,000,000 flood control project to be constructed by the Federal Government.

Albion Malleable Iron Co., Albion, Mich., will install the duplexing process in its foundry and is making necessary alterations for the use of that process.

FABRICATED STEEL

. . . Lettings higher at 16,000 tons compared with 13,250 tons last week.

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. . . New projects in better volume at 12,800 tons as against 9000 tons in the previous week.

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. . . Plate awards only 115 tons.

NORTH ATLANTIC STATES

Uxbridge, Mass., 100 tons, State bridge, to Bethlehem Steel Co.

Brockton, Mass., 100 tons, street railway garage, to New England Structural Co., Everett, Mass.

Southbridge, Mass., 100 tons, American Optical Co. plant addition, to Bethlehem Fabricators, Inc., Bethlehem, Pa.

Fitchburg, Mass., 100 tons, bridge, to Bethlehem Steel Co.

Brooklyn, 280 tons, addition to school 197, to Bethlehem Fabricators, Inc.

New York, 400 tons, caissons and cutting edges, Bronx-Whitestone bridge, to Dravo Corp.

New York, 145 tons, St. Clare's Hospital addition, 415 West 51st Street, to Dreier Structural Steel Co.

Astoria, N. Y., 2700 tons, William Cullen Bryant High School, to Bethlehem Fabricators, Inc.

Schoharie County, N. Y., 145 tons, State highway bridge, to Pan-American Bridge Co.

New Rochelle, N. Y., 255 tons, Arnold Constable store, to Bethlehem Fabricators, Inc.

Corning, N. Y., 1200 tons, building for Corning Glass Works, to International Steel Co., Evansville, Ind.

Buffalo, 200 tons, sludge disposal plant for Buffalo Sewer Authority, to R. S. McMannus Steel Construction Co., Buffalo.

Elizabethport, N. J., 566 tons, Trumbull Street railroad bridge, to Bethlehem Steel Co.

Perth Amboy, N. J., 200 tons, American Smelting & Refining Co. mill building, to Belmont Iron Works, Philadelphia.

Alpine, N. J., 330 tons, 400-ft. radio tower, to American Bridge Co.

Bayonne, N. J., 125 tons, Atlas Steel Barrel building, to Bethlehem Fabricators, Inc.

Coatesville, Pa., 450 tons, By-Products Steel Co. mill building, to Belmont Iron Works.

Williamsport, Pa., 460 tons, textile building, to Bethlehem Steel Co.

Philadelphia, 200 tons, box poles for Pennsylvania Railroad, to Bethlehem Steel Co.

Sharon, Pa., 300 tons, office building, Westinghouse Electric & Mfg. Co., to Bethlehem Steel Co.

SOUTH AND SOUTHWEST

State of Tennessee, 1300 tons, operating bridge for TVA, to Duffin Iron Works, Chicago.

Cherry Run, W. Va., 105 tons, Western Maryland Railway Co. girder span, to American Bridge Co.

Jefferson County, Ky., 320 tons, bridge, to American Bridge Co.

Louisville, Ky., 155 tons, Bernheim bottling plant, to Joseph T. Ryerson & Son, Inc.

High Point, N. C., 115 tons, State highway bridge, to Southern Engineering Co.

Corinth, Miss., 175 tons, nine transmission towers for TVA, to Nashville Bridge Co.

Cimarron County, Okla., 475 tons, bridge, to J. B. Klein Iron & Foundry Co., Oklahoma City.

CENTRAL STATES

St. Joseph, Mich., 360 tons, press and warehouse buildings, to R. C. Mahon Co., Detroit.

Whiting, Ind., 1525 tons, Federated Metals building, to Austin Co.

Shelby County, Ind., 465 tons, bridge, to Central States Bridge & Structural Co., Indianapolis.

Ottawa, Ill., 455 tons, gas producer building and furnace house, Libbey-Owens-Ford Glass Co., 190 tons to Wisconsin Bridge Co., 265 tons to Mississippi Valley Structural Steel Co.

Chicago, 450 tons, warehouse, to Wendnagel & Co., Chicago.

Chicago, 450 tons, Lady Esther Co., to Worden-Allen Co., Milwaukee.

Canton, Ill., 300 tons, International Harvester Co. building, to Worden-Allen Co.

St. Paul, Minn., 470 tons, filtration building, to St. Paul Foundry Co.

Portage, Wis., 300 tons, lift span, to Worden-Allen Co.

WESTERN STATES

Denver, 229 tons, State bridge, to an unnamed bidder.

Los Angeles, 310 tons, Southern California Telephone Co. building, to Pacific Iron & Steel Co., Los Angeles.

NEW STRUCTURAL STEEL PROJECTS

NORTH ATLANTIC STATES

Leominster, Mass., 250 tons, factory building, Cluett Peabody & Co.

New York, 270 tons, addition to school No. 86 in Bronx, to Bryant Contracting Co., general contractor.

New York, 250 tons, building, Emanuel Ornstein.

New York, 250 tons, alterations to stock yard buildings, New York Central Railroad.

Flushing, N. Y., 250 tons, factory building, Lincoln Associates.

Schenectady, N. Y., 500 tons, foundry extension, American Locomotive Co.

New Brunswick, N. J., 1000 tons, five underpasses for Pennsylvania Railroad; bids in on three, and two go in July 22.

Philadelphia, 300 tons, reconstruction of pier No. 12, Baltimore & Ohio Railroad.

Greenville, Pa., 270 tons, extension to mill building, Chicago Bridge & Iron Works.

Scranton, Pa., 160 tons, bridge; bids July 30.

Philadelphia, 750 tons, Lit Brothers store at 69th Street; bids soon to McCloskey & Co., general contractor.

Riverdale, Md., 450 tons, factory building and office, Engineer & Research Corp.

Washington, 600 tons, office building, Equitable Life Insurance Co.

THE SOUTH

States of Tennessee and Alabama, 4000 tons, spillway gates, Guntersville and Chicamauga dams, for TVA.

CENTRAL STATES

Detroit, 1000 tons, grade separation, State, city and Grand Trunk Railway project.

Evansville, Ind., 700 tons, boiler room, Southern Indiana Gas & Electric Co.

Franklin, Ind., 500 tons, coaling station.

Chicago, 1100 tons, post office garage; bids taken.

Chicago, 270 tons, supply department building alterations, Board of Education.

WESTERN STATES

Denver, 188 tons, State highway construction; bids July 26.

Denver, 522 tons, bridge.

FABRICATED PLATES

AWARDS

Wabash, Ind., 115 tons, Northern Indiana Public Service Co. gas holder, to Chicago Bridge & Iron Works.

NEW PROJECTS

Denver, 1800 tons, pipe line for Colorado Fuel & Iron Co.

Republic Continuous Mill Ready in Fall

THE new 98-in. continuous strip mills of the Republic Steel Corp. in Cleveland are nearing completion and are scheduled to start operation early in the fall or in slightly more than nine months after ground was broken for the 21-acre building project.

The plant is located on a 120-acre site in the Cuyahoga Valley with river frontage and consists of three main buildings ranging from 900 to 1800 ft. in length.

. . .NON-FERROUS. . .

. . . *Domestic copper stocks up 6151 tons; demand moderate.*

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. . . *Lead sales increase substantially; zinc somewhat quieter.*

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. . . *Tin bookings show little change.*

NEW YORK, July 20.—Statistics issued during the week show that copper shipments in June, amounting to 83,581 tons, decreased for the third successive month. Smelter production rose from 87,655 tons in May to 89,732 tons in June, indicating a rise in domestic refined and blister stocks of 6151 tons. Demands for the red metal continue in moderate volume. A recession in the operations of company affiliated fabricators accounts for a substantial portion of the lessened buying activity of the past week. Quotations are steady and unchanged at 14c. per lb., Connecticut Valley, for the electrolytic grade. A slight improvement in the demand in London was reported, with sales being booked at 14.05c. to 14.15c. per lb., c.i.f., usual Continental base ports.

Lead

New business of a well-diversified nature, at a firm price level of 6c. per lb., New York, is maintaining the healthy buying interest that has been evident in the lead market for the past several weeks. Bookings were estimated to be as much as 50 per cent above the previous week's total. August requirements are about 45 per cent covered, and, although a small amount of July buying is still being done, the needs for this month are fairly well blanketed.

Zinc

Buying, while still in good quantity, was not up to the level of activity established the previous week. Difficulty in securing spot positions continues, with little relief in sight. Sales of prime Western for the week were 11,956 tons. Shipments amounting to 4585 tons caused undelivered stocks to rise to 70,570 tons. Prices remain firm and unaltered at 7.35c. per lb., New York. The London exchange has been fairly active, and spelter was quoted this morning in London at 5.03c. per lb. for spot metal.

Ingot Brass and Bronze

Average prices received by members of the Non-Ferrous Ingot Metal Institute during the 28-day period ended July 9, on commercial 80-10-10 and 85 per cent brass ingots, were 15.893c. and 13.786c. per lb. respectively. Deliveries of brass and bronze ingots and billets in June were 6584 tons, as compared with 8210 tons in May. Unfilled orders amounted to 15,784 tons on July 1, as against 18,037 tons on June 1.

Tin

Professional buying of future positions remains the main feature of buying activity in a dull, but steady market, with spot metal becoming increasingly scarce. Considerable interest has been focused on the fluctuation of sterling exchange, which was up to $4.98½ during the week, as each cent rise in the exchange means a rise of 0.125c. in tin prices here. Straits tin is quoted at 60.375c. per lb., New York, for prompt positions, and 59.75c. for September metal, an increase of 0.275c. over last week's price level in spot positions.

The Week's Prices. Cents Per Pound for Early Delivery

	July 14	July 15	July 16	July 17	July 19	July 20
Electrolytic copper, Conn.*	14.00	14.00	14.00	14.00	14.00	14.00
Lake copper, N. Y.	14.125	14.125	14.125	14.125	14.125	14.125
Straits tin, spot, New York	60.10	59.625	60.00	....	59.875	60.375
Zinc, East St. Louis	7.00	7.00	7.00	7.00	7.00	7.00
Zinc, New York	7.35	7.35	7.35	7.35	7.35	7.35
Lead, St. Louis	5.85	5.85	5.85	5.85	5.85	5.85
Lead, New York	6.00	6.00	6.00	6.00	6.00	6.00

*Delivered Connecticut Valley; price ¼c. lower delivered in New York.
Aluminum, virgin 99 per cent plus 20.00c.-21.00c. a lb., delivered.
Aluminum No. 12 remelt No. 2 standard, in carloads, 19.00c. to 19.50c. a lb., delivered.
Nickel, electrolytic, 35c. to 36c. a lb. base refinery, in lots of 2 tons or more.
Antimony, Asiatic, 15.00c. a lb., prompt, f.o.b., New York.
Quicksilver, $94.00 to $96.00 per flask of 76 lb.
Brass ingots, commercial 85-5-5-5, 14.00c. a lb., less carload, delivered; in Middle West ¼c. a lb. is added on orders for less than 40,000 lb.

From New York Warehouse
Delivered Prices, Base per Lb.

Tin, Straits pig	60.50c. to 61.50c.
Tin, bar	63.75c. to 64.75c.
Copper, Lake	15.00c. to 16.00c.
Copper, electrolytic	15.00c. to 16.00c.
Copper, castings	14.75c. to 15.75c.
*Copper sheets, hot-rolled	21.78c.
*High brass sheets	19.75c.
*Seamless brass tubes	22.50c.
*Seamless copper tubes	22.625c.
*Brass rods	16.25c.
Zinc, slabs	8.00c. to 9.00c.
Zinc, sheets (No. 9), casks, 1200 lb. and over	12.75c.
Lead, American pig	7.00c. to 8.00c.
Lead, bar	8.00c. to 9.00c.
Lead, sheets, cut	10.50c.
Antimony, Asiatic	15.50c.
Alum., virgin, 99 per cent plus	22.50c. to 24.00c.
Alum., No. 1 for remelting, 98 to 99 per cent	19.50c. to 21.00c.
Solder, ½ and ½	35.00c. to 36.00c.
Babbitt metal, commercial grade	25.00c. to 65.00c.

*These prices, which are also for delivery from Chicago and Cleveland warehouses, are quoted with 33⅓ per cent allowed off for extras, except copper tubes and brass rods, on which allowance is 40 per cent.

From Cleveland Warehouse
Delivered Prices per Lb.

Tin, Straits pig	63.75c.
Tin, bar	65.75c.
Copper, Lake	15.00c. to 15.25c.
Copper, electrolytic	15.00c. to 15.25c.
Copper, castings	14.75c. to 15.00c.
Zinc, slabs	8.25c. to 8.50c.
Lead, American pig	6.50c. to 6.75c.
Lead, bar	10.00c.
Antimony, Asiatic	16.50c.
Babbitt metal, medium grade	25.75c.
Babbitt metal, high grade	67.75c.
Solder, ½ and ½	39.75c.

Old Metals, Per Lb., New York

Buying prices are paid by dealers for miscellaneous lots from smaller accumulators and selling prices are those charged to consumers after the metal has been prepared for their uses. (All prices are nominal.)

	Dealers' Buying Prices	Dealers' Selling Prices
Copper, hvy. crucible	10.75c.	11.50c.
Copper, hvy. and wire	10.125c.	10.625c.
Copper, light and bottoms	9.125c.	9.375c.
Brass, heavy	6.125c.	6.75c.
Brass, light	5.00c.	5.75c.
Hvy. machine composition	9.00c.	9.50c.
No. 1 yel. brass turnings	7.375c.	7.875c.
No. 1 red brass or compos. turnings	8.75c.	9.25c.
Lead, heavy	4.625c.	5.00c.
Cast aluminum	12.125c.	13.25c.
Sheet aluminum	13.25c.	14.75c
Zinc	3.50c.	3.875c.

IRON AND STEEL SCRAP

. . . No. 1 steel advances $1.50 at Chicago; 50c. at Pittsburgh.

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. . . Composite price $19.17, up 67c.

JULY 20.—Scarcity of material, whether artificial or real, has tended to boost prices for the third consecutive week. In spite of a price rise of $1.50 at Chicago, it is still difficult to obtain material there. Dealers are also finding material scarce at Pittsburgh on offers of $20 a ton. Although Philadelphia prices remain unchanged on all but a few specialties, prices are high enough in the East to prevent much material flowing toward Pittsburgh. Biggest advances of the week, from $1 to $2, took place at Cleveland, where the market had been lagging. Rises of $1 to $1.50 were also recorded at Buffalo, while at Detroit bundles went up $1 on the strength of recent sales by automobile plants. Whether mill operations warrant or not, dealers seem to be holding out for higher prices, such as prevailed in April. Brokers appear to be more conservative, although some are equally bullish. THE IRON AGE composite price advanced 67c. to $19.17.

Pittsburgh

Scrap is stronger. No. 1 heavy melting steel is now quotable at $19.75 to $20.25, an advance of 50c. Dealers are cautious against forcing sales at current levels, finding material scarce despite offers of as high as $20 a ton and believing orders at the current levels would be difficult to fill. A small amount was purchased recenty by a down-river consumer at around $20 a ton. Ordinarily, this would have little bearing on the market, but in the absence of other sales it is indicative of the current condition. High prices in the East and elsewhere have combined to turn scrap away from this district. Railroad specialties continue very scarce.

Chicago

Continued dealer resistance to high broker offering prices and two sales at $18.50 have combined to boost the price of No. 1 steel $1.50 a ton to $18 to $18.50. Other classifications have been increased in proportion. In spite of this sharp price rise, it is still difficult to obtain material, and offerings of $19 and even $19.50 have been reported. Dealers are not anxious to sell since the market seems to be gaining strength, and their stocks are reported to be fairly large. The Rock Island steel sold last week for about $18.50 on track.

Philadelphia

Market sentiment here is still on the strong side, although nothing has developed to justify higher quotations. Phoenix bought a moderate quantity of No. 2 and another district mill was in the market a few days ago for some No. 1, both transactions being in line with published price levels. All district mills are releasing shipments freely, the operating rate has shown a slight advance, and all brokers here are looking forward to a strong and active market over the next few months. The high price prevailing here is discouraging any new buying for export, as brokers find it more advantageous to work out their contracts from Southern ports or in the New England area, where prices average $1 to $3 lower than they are here.

Cleveland

Cleveland scrap prices, which did not start upward as soon as in some other districts, advanced from $1 to $2 a ton during the week. In the Youngstown district steel making grades made a further advance of from $1 to $1.50 a ton. Sales of fair sized lots were made to consumers in both Cleveland and Youngstown. Mills are reported to have paid $20.50 for No. 1 heavy melting steel, $19 for No. 2 and $20 for bundles for Youngstown delivery, and $19.50 for No. 1 and $18.50 for No. 2 for Cleveland. With higher prices, the supply of scrap is less plentiful than recently. Brokers are paying $19 to $19.50 for No. 1 steel in Cleveland and report that not much is coming out.

Buffalo

It is understood that a new order of No. 2 heavy melting steel was placed at between $17.50 and $18. The differential between No. 1 and No. 2, as exercised by the purchasing mill, is usually $1. An order of stove plate has been booked at $16. The market is strong and many dealers believe it is due for another long ascent.

Boston

Prices have strengthened all along the line, both for domestic and export deliveries. The most pronounced advance has been in heavy melting steel for Pittsburgh delivery, yet the higher prices have resulted in little actual business because an advance of 50c. a ton in export prices is more attractive to sellers. General business in bundled skeleton is at $11.90 to $11.95 a ton on cars, but scattering cars sold the past week at $11.75 a ton for shipment to a point outside the Pittsburgh area. A moderate turnover in cleaned engine blocks is reported at $12.50 a ton on cars, and in No. 2 cast at the same figure. New England foundries continue to take machinery cast sparingly.

New York

In the absence of any substantial mill buying or export orders, prices remain practically unchanged. One broker is paying $16 for No. 1 steel to cover an old order of that grade only, but the regular buying price remains at $15.50 top, with $14.50 for No. 2. Heavy breakable cast has been marked up 25c. on the basis of recent sales to Harrisburg. Some feel that the present restriction in supply is largely artificial and that plenty of scrap will come into the yards, should prices take another rise. Others believe a real scarcity exists. Hot weather is having its usual adverse effect upon yard activity. While the general tone is strong, brokers are adopting a cautious attitude and seem inclined to hold back the present climb in prices.

Cincinnati

The old materials market is tightening. Dealer activity to replenish yard stocks brought bids 50c. to 75c. higher than last week and more material is being attracted. Sales are negligible since mills have not yet become strongly interested in filling inventory depletions.

St. Louis

The scrap iron market in St. Louis continues to gain strength, and prices were higher during the week, melting grades advancing from 50c. to $1 a ton. There were no sales of consequence to the mills, and the strength was said to be in sympathy with outside markets. Very little scrap is being offered to dealers.

Detroit

Showing the greatest activity of any item in recent months, hydraulic bundles moved up $1 last week, bringing reported prices higher than $18 a ton in several sales. It is generally understood that the material is going to out-of-town mills. Bushelings and turnings also advanced. Sentiment is more bullish than prices indicate, and brokers predict that prices will reach the previous peak. Part of the present boosts are attributable to the closing of automotive shops to prepare for new models, thereby reducing the output of scrap.

Iron and Steel Scrap Prices

PITTSBURGH

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$19.75 to $20.25
Railroad hvy. mltng. ..	21.00 to 21.50
No. 2 hvy. mltng. steel.	17.50 to 18.00
No. 2 RR. wrought....	19.75 to 20.25
Scrap rails	21.50 to 22.00
Rails 3 ft. and under..	24.50 to 25.00
Comp. sheet steel	19.75 to 20.25
Hand bundled sheets..	17.50 to 18.00
Hvy. steel axle turn...	17.75 to 18.25
Machine shop turn....	14.00 to 14.50
Short shov. turn.....	14.50 to 15.00
Mixed bor. & turn....	14.50 to 15.00
Cast iron borings	14.50 to 15.00
Cast iron carwheels....	19.50 to 20.00
Hvy. breakable cast...	14.50 to 15.00
No. 1 cupola cast.....	19.00 to 19.50
RR. knuckles & cplrs..	24.50 to 25.00
Rail coil & leaf springs	24.50 to 25.00
Rolled steel wheels....	24.50 to 25.00
Low phos. billet crops.	24.50 to 25.00
Low phos. sh. bar	24.00 to 24.50
Low phos. punchings..	22.00 to 22.50
Low phos. plate, hvy...	23.00 to 23.50
Low phos. plate clips..	21.00 to 21.50
Steel car axles	24.50 to 25.00

CLEVELAND

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$19.00 to $19.50
No. 2 hvy. mltng. steel.	17.50 to 18.00
Comp. sheet steel	18.50 to 19.00
Light bund. stampings.	14.00 to 14.50
Drop forge flashings...	17.50 to 18.00
Machine shop turn....	12.50 to 13.00
Short shov. turn.....	13.00 to 13.50
No. 1 busheling	17.50 to 18.00
Steel axle turnings....	15.00 to 15.50
Low phos. billet and bloom crops	25.50 to 26.00
Cast iron borings	13.50 to 14.00
Mixed bor. & turn.....	13.50 to 14.00
No. 2 busheling	13.50 to 14.00
No. 1 cast.....	19.00 to 19.50
Railroad grate bars...	11.50 to 12.00
Stove plate	11.00 to 11.50
Rails under 3 ft.	24.00 to 24.50
Rails for rollings	21.00 to 21.50
Railroad malleable	22.00 to 22.50
Cast iron carwheels....	.... 21.50

PHILADELPHIA

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$19.00 to $19.50
No. 2 hvy. mltng. steel.	16.50 to 17.00
Hydraulic bund., new.	18.00 to 18.50
Hydraulic bund., old..	14.50 to 15.00
Steel rails for rolling..	21.00 to 21.50
Cast iron carwheels ..	19.50 to 20.00
Hvy. breakable cast...	18.50 to 19.00
No. 1 cast.	20.00 to 20.50
Stove plate (steel wks.)	15.00 to 15.50
Railroad malleable	19.00 to 19.50
Machine shop turn....	13.50 to 14.00
No. 1 blast furnace	12.50 to 13.00
Cast borings	12.50 to 13.00
Heavy axle turnings..	15.00 to 15.50
No. 1 low phos. hvy....	23.50 to 24.00
Couplers & knuckles..	24.00 to 24.50
Rolled steel wheels ...	24.00 to 24.50
Steel axles	25.50 to 26.00
Shafting	23.50 to 24.00
No. 1 RR. wrought	19.50 to 20.00
Spec. iron & steel pipe	16.50 to 17.00
No. 1 forge fire	16.00 to 16.50
Cast borings (chem.).	14.00 to 14.50

CHICAGO

Delivered to Chicago district consumers:

	Per Gross Ton
Hvy. mltng. steel.....	$18.00 to $18.50
Auto. hvy. mltng. steel, alloy free	16.50 to 17.00
No. 2 auto. steel	14.50 to 15.00
Shoveling steel	18.00 to 18.50
Hydraul. comp. sheets.	17.25 to 17.75
Drop forge flashings...	15.00 to 15.50
No. 1 busheling	17.25 to 17.75
Rolled carwheels	22.00 to 22.50
Railroad tires, cut	22.50 to 23.00
Railroad leaf springs..	21.50 to 22.00
Steel coup. & knuckles	20.50 to 21.00
Axle turnings	17.00 to 17.50
Coil springs	23.00 to 23.50
Axle turn. (elec.).....	18.00 to 18.50
Low phos. punchings..	21.00 to 21.50
Low phos. plates, 12 in. and under	21.00 to 21.50
Cast iron borings	11.50 to 12.00
Short shov. turnings..	12.00 to 12.50
Machine shop turn. ...	10.00 to 10.50
Rerolling rails	21.50 to 22.00
Steel rails under 3 ft...	21.00 to 21.50
Steel rails under 2 ft...	21.50 to 22.00
Angle bars, steel	21.50 to 22.00
Cast iron carwheels ..	19.00 to 19.50
Railroad malleable	20.50 to 21.00
Agric. malleable	17.00 to 17.50

	Per Net Ton
Iron car axles	$25.50 to $26.00
Steel car axles	22.50 to 23.00
No. 1 RR. wrought	16.25 to 16.75
No. 2 RR. wrought ...	16.25 to 16.75
No. 2 busheling, old..	9.50 to 10.00
Locomotive tires	18.50 to 19.00
Pipes and flues	14.00 to 14.50
No. 1 machinery cast...	15.50 to 16.00
Clean auto. cast.	14.50 to 15.00
No. 1 railroad cast.....	14.50 to 15.00
No. 1 agric. cast.....	13.50 to 14.00
Stove plate	11.50 to 12.00
Grate bars	13.00 to 13.50
Brake shoes	12.50 to 13.00

BUFFALO

Per gross ton, f.o.b. consumers' plants:

No. 1 hvy. mltng. steel.	$19.00 to $19.50
No. 2 hvy. mltng. steel.	17.50 to 18.00
Scrap rails	20.50 to 21.00
New hvy. b'ndled sheet	17.50 to 18.00
Old hydraul. bundles ..	16.50 to 17.00
Drop forge flashings ..	17.50 to 18.00
No. 1 busheling	17.50 to 18.00
Hvy. axle turnings ...	14.00 to 14.50
Machine shop turn. ...	13.00 to 13.50
Knuckles & Couplers..	22.00 to 23.00
Coil & leaf springs....	22.00 to 23.00
Rolled steel wheels....	22.00 to 23.00
Low phos. billet crops.	22.00 to 23.00
Shov. turnings	14.00 to 14.50
Mixed bor. & turn.....	14.00 to 14.50
Cast iron borings	14.00 to 14.50
Steel car axles	21.00 to 22.00
No. 1 machinery cast..	18.00 to 18.50
No. 1 cupola cast.....	17.00 to 17.50
Stove plate	15.50 to 16.00
Steel rails under 3 ft...	23.00 to 24.00
Cast iron carwheels...	18.00 to 18.50
Railroad malleable	20.00 to 20.50
Chemical borings	13.50 to 14.00

BIRMINGHAM

Per gross ton delivered to consumer:

Hvy. melting steel	$16.00 to $16.50
Scrap steel rails	.... 17.00
Short shov. turnings..	9.00 to 10.00
Stove plate	.... 10.00
Steel axles	18.00 to 19.00
Iron axles	16.50 to 18.00
No. 1 RR. wrought....	13.00 to 15.00
Rails for rolling	18.00 to 20.00
No. 1 cast	16.00 to 18.00
Tramcar wheels	16.00 to 18.00

ST. LOUIS

Dealer's buying prices per gross ton delivered to consumer:

Selected hvy. steel....	$16.50 to $17.00
No. 1 hvy. melting ..	16.00 to 16.50
No. 2 hvy. melting ..	14.50 to 15.00
No. 1 locomotive tires.	18.50 to 19.00
Misc. stand.-sec. rails.	17.00 to 17.50
Railroad springs	20.00 to 20.50
Bundled sheets	10.00 to 10.50
No. 2 RR. wrought ...	15.50 to 16.00
No. 1 busheling	12.00 to 12.50
Cast bor. & turn.	7.50 to 8.00
Rails for rolling	18.50 to 19.00
Machine shop turn....	9.00 to 9.50
Heavy turnings	12.00 to 12.50
Steel car axles	21.50 to 22.00
Iron car axles	22.00 to 22.25
No. 1 RR. wrought	13.00 to 13.50
Steel rails under 3 ft...	19.00 to 19.50
Steel angle bars	19.00 to 19.50
Cast iron carwheels...	17.50 to 18.50
No. 1 machinery cast...	14.00 to 14.50
Railroad malleable	18.00 to 18.50
No. 1 railroad cast.....	14.00 to 14.50
Stove plate	11.00 to 11.50
Agricul. malleable	12.50 to 13.00
Grate bars	11.50 to 12.00
Brake shoes	11.50 to 12.00

CINCINNATI

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$15.50 to $16.00
No. 2 hvy. mltng. steel.	13.00 to 13.50
Scrap rails for mltng. ..	18.75 to 19.25
Loose sheet clippings..	11.50 to 12.00
Hydrau. b'ndled sheets.	14.75 to 15.25
Cast iron borings	9.00 to 9.50
Machine shop turn.	9.50 to 10.00
No. 1 busheling	13.50 to 14.00
No. 2 busheling	7.00 to 7.50
Rails for rolling	20.50 to 21.00
No. 1 locomotive tires.	16.50 to 17.00
Short rails	21.75 to 22.25
Cast iron carwheels....	15.50 to 16.00
No. 1 machinery cast..	15.00 to 15.50
No. 1 railroad cast.....	15.00 to 15.50
Burnt cast.	10.50 to 11.00
Stove plate	10.50 to 11.00
Agricult. malleable ...	16.00 to 16.50
Railroad malleable	17.25 to 17.75
Mixed hvy. cast.	13.00 to 13.50

DETROIT

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$15.50 to $16.00
No. 2 hvy. mltng. steel.	14.50 to 15.00
Borings and turnings..	11.25 to 11.75
Long turnings	10.75 to 11.25
Short shov. turnings...	12.00 to 12.50
No. 1 machinery cast..	15.50 to 16.00
Automotive cast.	16.25 to 16.75
Hydraul. comp. sheets.	17.50 to 18.00
Stove plate	10.00 to 10.50
New factory bushel...	15.00 to 15.50
Old No. 2 busheling....	10.00 to 10.50
No. 2 busheling (black fender stock)	12.50 to 13.00
Sheet clippings	11.75 to 12.25
Flashings	14.50 to 15.00
Low phos. plate scrap.	16.50 to 17.00

YOUNGSTOWN

Per gross ton delivered to consumer:

No. 1 hvy. mltng. steel.	$20.00 to $20.50
Hydraulic bundles	19.50 to 20.00
Machine shop turn.	14.00 to 14.50

NEW YORK

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$15.00 to $15.50
No. 2 hvy. mltng. steel.	14.00 to 14.50
Hvy. breakable cast...	15.00 to 15.50
No. 1 machinery cast...	15.50 to 16.00
No. 2 cast.	14.50 to 15.00
Stove plate	11.50 to 12.00
Steel car axles	25.00 to 26.00
Shafting	19.50 to 20.00
No. 1 RR. wrought....	17.50 to 18.00
No. 1 wrought long...	16.50 to 17.00
Spec. iron & steel pipe.	13.00 to 13.50
Rails for rolling	19.00 to 19.50
Clean steel turnings ..	9.50 to 10.00
Cast borings	9.00 to 9.50
No. 1 blast furnace	9.00 to 9.50
Cast borings (chem.)..	12.50 to 13.00
Unprepar. yard scrap..	9.50 to 10.00
Per gross ton, delivered local foundries:	
No. 1 machn. cast....	$17.50 to $18.00
No. 1 hvy. cast cupola.	15.00 to 15.50
No. 2 cast	14.50 to 15.00

BOSTON

Dealers' buying prices per gross ton:

No. 1 hvy. mltng. steel.	$14.00 to $14.25
Scrap rails	14.00 to 14.25
No. 2 steel	12.95 to 13.25
Breakable cast.	14.25 to 14.50
Machine shop turn.....	8.50 to 8.75
Mixed bor. & turn.....	8.50 to 8.75
Bund. skeleton long....	11.90 to 11.95
Shafting	18.25 to 18.50
Cast bor. chemical....	9.00 to 10.00
Per gross ton delivered consumers' yards:	
Textile cast.....	$17.00 to $18.00
No. 1 machine cast.....	.... 18.00
Stove plate	10.00 to 10.50

CANADA

Dealers' buying prices at their yards, per gross ton

	Toronto	Montreal
No. 1 hvy. mltng. stl...	$12.50	$12.00
No. 2 hvy. mltng. stl...	11.50	11.00
Mixed dealers steel....	11.00	10.50
Scrap pipe	10.00	9.75
Steel turnings	8.00	8.00
Cast borings	9.25	9.00
Machinery cast.	16.00	15.50
Dealers cast.	14.00	14.00
Stove plate	12.00	11.00

EXPORT

Dealers' buying prices per gross ton:

New York, truck lots, delivered, barges.

No. 1 hvy. mltng. steel.	$15.50
No. 2 hvy. mltng. steel.	14.50
No. 2 cast.	13.50
Stove plate	11.00

Boston on cars at Army Base or Mystic Wharf

No. 1 hvy. mltng. steel.	$16.50
No. 2 hvy. mltng. steel.	15.50
Rails (scrap)	$16.50 to 16.75

Philadelphia, delivered alongside boats, Port Richmond

No market at present.

New Orleans, f.a.s., Stuyvesant Dock

No. 1 hvy. mltng. steel.	$17.50
No. 2 hvy. mltng. steel.	16.50

Los Angeles, on cars or trucks at local piers

No. 1 hvy. mltng. steel.	$10.50 to $11.00
Compressed bundles ..	8.50 to 9.00

PRICES ON FINISHED AND SEMI-FINISHED IRON AND STEEL

SEMI-FINISHED STEEL

Billets, Blooms and Slabs

F.o.b. Pittsburgh, Chicago, Gary, Cleveland, Youngstown, Buffalo, Birmingham. Prices at Duluth are $2 a ton higher, and delivered Detroit $3 higher.

	Per Gross Ton
Rerolling	$37.00
Forging quality	43.00

Sheet Bars

F.o.b. Pittsburgh, Chicago, Cleveland, Youngstown, Buffalo, Canton, Sparrows Point, Md.

	Per Gross Ton
Open-hearth or Bessemer	$37.00

Skelp

F.o.b. Pittsburgh, Chicago, Youngstown, Buffalo, Coatesville, Pa., Sparrows Point, Md.

	Per Lb.
Grooved, universal and sheared	2.10c.

Wire Rods
(No. 5 to 9/32 in.)

	Per Gross Ton
F.o.b. Pittsburgh or Cleveland	$47.00
F.o.b. Chicago, Youngstown or Anderson, Ind	48.00
F.o.b. Worcester, Mass.	49.00
F.o.b. Birmingham	50.00
F.o.b. San Francisco	56.00
F.o.b. Galveston	53.00

Rods over 9/32 in. to 47/64 in., inclusive, $5 a ton over base.

BARS, PLATES, SHAPES

Iron and Steel Bars

Soft Steel

	Base per Lb.
F.o.b. Pittsburgh	2.45c.
F.o.b. Chicago or Gary	2.50c.
F.o.b. Duluth	2.60c.
Del'd Detroit	2.60c.
F.o.b. Cleveland	2.50c.
F.o.b. Buffalo	2.55c.
Del'd Philadelphia	2.74c.
Del'd New York	2.78c.
F.o.b. Birmingham	2.60c.
F.o.b. cars dock Gulf ports	2.85c.
F.o.b. cars Pacific Ports	3.00c.

Rail Steel
(For merchant trade)

F.o.b. Pittsburgh	2.30c.
F.o.b. Cleveland, Chicago, Gary or Moline, Ill.	2.35c.
F.o.b. Buffalo	2.40c.
F.o.b. Birmingham	2.45c.
F.o.b. cars dock Gulf ports	2.70c.
F.o.b. cars dock Pacific ports	2.85c.

Billet Steel Reinforcing
(Straight lengths as quoted by distributers)

F.o.b. Pittsburgh	2.55c.
F.o.b. Buffalo, Cleveland, Youngstown, Chicago, Gary or Birmingham	2.60c.
Del'd Detroit	2.70c.
F.o.b. cars dock Gulf ports	2.95c.
F.o.b. cars dock Pacific ports	2.95c.

Rail Steel Reinforcing
(Straight lengths as quoted by distributers)

F.o.b. Pittsburgh	2.40c.
F.o.b. Buffalo, Cleveland, Youngstown, Chicago, Gary or Birmingham	2.45c.
F.o.b. cars dock Gulf ports	2.80c.
F.o.b. cars dock Pacific ports	2.80c.

Iron

F.o.b. Chicago	2.40c.
F.o.b. Pittsburgh (refined)	3.60c.

Cold Finished Bars and Shafting*

	Base per Lb.
F.o.b. Pittsburgh	2.90c.
F.o.b. Cleveland, Chicago and Gary	2.95c.
F.o.b. Buffalo	3.00c.
F.o.b. Detroit	2.95c.

* In quantities of 10,000 to 19,999 lb.

Plates

	Base per Lb.
F.o.b. Pittsburgh	2.25c.
F.o.b. Chicago or Gary	2.30c.
Del'd Cleveland	2.435c.
F.o.b. Coatesville or Spar. Pt.	2.35c.
Del'd Philadelphia	2.435c.
Del'd New York	2.53c.
F.o.b. Birmingham	2.40c.
F.o.b. cars dock Gulf ports	2.65c.
F.o.b. cars dock Pacific ports	2.80c.
Wrought iron plates, f.o.b. Pittsburgh	3.80c.

Floor Plates

F.o.b. Pittsburgh	3.80c.
F.o.b. Chicago	3.85c.
F.o.b. Coatesville	3.90c.
F.o.b. cars dock Gulf ports	4.20c.
F.o.b. cars dock Pacific ports	4.35c.

Structural Shapes

	Base per Lb.
F.o.b. Pittsburgh	2.25c.
F.o.b. Chicago	2.30c.
Del'd Cleveland	2.435c.
F.o.b. Buffalo or Bethlehem	2.35c.
Del'd Philadelphia	2.455c.
Del'd New York	2.5025c.
F.o.b. Birmingham (standard)	2.40c.
F.o.b. cars dock Gulf ports	2.65c.
F.o.b. cars dock Pacific ports	2.80c.

Steel Sheet Piling

	Base per Lb.
F.o.b. Pittsburgh	2.60c.
F.o.b. Chicago or Buffalo	2.70c.
F.o.b. cars dock Gulf or Pacific Coast ports	3.05c.

RAILS AND TRACK SUPPLIES

F.o.b. Mill

Standard rails, heavier than 60 lb., per gross ton	$42.50
Angle bars, per 100 lb.	2.80

F.o.b. Basing Points

Light rails (from billets) per gross ton	$43.00
Light rails (from rail steel) per gross ton	42.00

	Base per Lb.
Spikes	3.15c.
Tie plates, steel	2.30c.
Tie plates, Pacific Coast ports	2.40c.
Track bolts, to steam railroads	4.35c.
Track bolts, to jobbers, all sizes (per 100 counts)	65-5 per cent off list

Basing points on light rails are Pittsburgh, Chicago and Birmingham; on spikes and tie plates, Pittsburgh, Chicago, Portsmouth, Ohio, Weirton, W. Va., St. Louis, Kansas City, Minnequa, Colo., Birmingham and Pacific Coast ports; on tie plates alone, Steelton, Pa., Buffalo; on spikes alone, Youngstown, Lebanon, Pa., Richmond, Va.

SHEETS, STRIP, TIN PLATE TERNE PLATE

Sheets

Hot Rolled

	Base per Lb.
No. 10, f.o.b. Pittsburgh	2.40c.
No. 10, f.o.b. Gary	2.50c.
No. 10, del'd Detroit	2.60c.
No. 10, del'd Philadelphia	2.69c.
No. 10, f.o.b. Granite City	2.60c.
No. 10, f.o.b. Birmingham	2.55c.
No. 10, f.o.b. cars dock Pacific ports	2.95c.
No. 10 wrought iron, Pgh.	4.25c.

Hot-Rolled Annealed

No. 24, f.o.b. Pittsburgh	3.15c.
No. 24, f.o.b. Gary	3.25c.
No. 24, del'd Detroit	3.35c.
No. 24, del'd Philadelphia	3.44c.
No. 24, f.o.b. Granite City	3.35c.
No. 24, f.o.b. Birmingham	3.30c.
No. 24, f.o.b. cars dock Pacific ports	3.80c.
No. 24, wrought iron, Pittsburgh	5.15c.

Heavy Cold-Rolled

No. 10 gage, f.o.b. Pittsburgh	3.10c.
No. 10 gage, f.o.b. Gary	3.20c.
No. 10 gage, f.o.b. Detroit	3.30c.
No. 10 gage, del'd Philadelphia	3.39c.
No. 10, f.o.b. Granite City	3.30c.
No. 10 gage, f.o.b. Birmingham	3.25c.
No. 10 gage, f.o.b. cars dock Pacific ports	3.70c.

Light Cold-Rolled

No. 20 gage, f.o.b. Pittsburgh	3.55c.
No. 20 gage, f.o.b. Gary	3.65c.
No. 20 gage, del'd Detroit	3.75c.
No. 20 gage, del'd Philadelphia	3.84c.
No. 20, f.o.b. Granite City	3.75c.
No. 20 gage, f.o.b. Birmingham	3.70c.
No. 20 gage, f.o.b. cars, dock, Pacific ports	4.10c.

Galvanized Sheets

No. 24 gage, f.o.b. Pittsburgh	3.80c.
No. 24, f.o.b. Gary	3.90c.
No. 24, del'd Philadelphia	4.09c.
No. 24, f.o.b. Granite City	4.00c.
No. 24, f.o.b. Birmingham	3.95c.
No. 24, f.o.b. cars, dock, Pacific ports	4.40c.
No. 24, wrought iron, Pittsburgh	6.10c.

Electrical Sheets
(F.o.b. Pittsburgh)

	Base per Lb.
Field grade	3.35c.
Armature	3.70c.
Electrical	4.20c.
Special Motor	5.10c.
Special Dynamo	5.80c.
Transformer	6.30c.
Transformer Special	7.30c.
Transformer Extra Special	7.80c.

Base gage changed from 28 to 24 gage. Gage extras are the same as those applying on hot-rolled, annealed sheets with few exceptions.

Silicon Strip in coils—Sheet price plus silicon sheet extra width extras plus 25c. per 100 lb. for coils.

Long Ternes

No. 24, unassorted 8-lb. coating f.o.b. Pittsburgh	4.10c.
F.o.b. Gary	4.20c.
F.o.b. cars, dock, Pacific ports	4.80c.

Vitreous Enameling Stock

No. 20, f.o.b. Pittsburgh	3.50c.
No. 20, f.o.b. Gary	3.60c.
No. 20, f.o.b. Granite City	3.70c.
No. 20, f.o.b. cars dock Pacific ports	4.10c.

Tin Mill Black Plate

No. 28, f.o.b. Pittsburgh, per lb.	3.30c.
No. 28, Gary	3.40c.
No. 28, f.o.b. Granite City	3.50c.
No. 28, cars dock Pacific ports, boxed	4.175c.

Tin Plate

	Base per Box
Standard cokes, f.o.b. Pittsburgh district mill	$5.35
Standard cokes, f.o.b. Gary	5.45
Standard coke, f.o.b. Granite City	5.55

Above quotations practically the equivalent of previous quotations owing to new method of quoting, effective Jan. 1, 1937.

Special Coated Manufacturing Ternes

	Base per Box
F.o.b. Pittsburgh	*$4.65
F.o.b. Gary	* 4.75
F.o.b. Granite City	4.85

* Customary 7½ per cent discount in effect through 1936 discontinued as of Jan. 1, 1937.

Terne Plate
(F.o.b. Pittsburgh)
(Per Package, 112 sheets, 20 x 28 in.)

8-lb. coating I.C.	$11.00
15-lb. coating I.C.	13.00
20-lb. coating I.C.	14.00
25-lb. coating I.C.	15.00
30-lb. coating I.C.	16.25
40-lb. coating I.C.	18.50

Hot-Holled Hoops, Bands, Strip and Flats under ¼ In.

	Base per Lb.
All widths up to 24 in., Pittsburgh	2.40c.
All widths up to 24 in., Chicago	2.50c.
All widths up to 24 in., del'd Detroit	2.60c.
All widths up to 24 in., Granite City	2.60c.
All widths up to 24 in., Birmingham	2.55c.
Cooperage stock, Pittsburgh	2.50c.
Cooperage stock, Chicago	2.60c.

Cold-Rolled Strip*

	Base per Lb.
F.o.b. Pittsburgh	3.20c.
F.o.b. Cleveland	3.20c.
Del'd Chicago	3.48c.
F.o.b. Worcester	3.40c.

* Carbon 0.25 and less.

Cold Rolled Spring Steel

		Pittsburgh and Cleveland	Worcester
Carbon	0.25-0.50%	3.20c.	3.40c.
Carbon	.51- .75	4.45c.	4.65c.
Carbon	.76-1.00	6.30c.	6.50c.
Carbon	Over 1.00	8.50c.	8.70c.

Fender Stock

No. 14, Pittsb'gh or Cleveland	3.45c.
No. 20, Pittsb'gh or Cleveland	3.85c.

WIRE PRODUCTS

(Carload lots, f.o.b. Pittsburgh and Cleveland)

To Manufacturing Trade

	Per Lb.
Bright wire	2.90c.
Spring wire	3.50c.

Chicago prices on products sold to the manufacturing trade are $1 a ton above Pittsburgh or Cleveland. Worcester and Duluth prices are $2 a ton above, Birmingham $3 above, and Pacific Coast prices $9 a ton above Pittsburgh or Cleveland.

To the Trade

	Base per Keg
Standard wire nails	$2.75
Smooth coated nails	$2.75
Cut nails, carloads	$3.60

	Base per 100 Lb.
Annealed fence wire	$3.20
Galvanized fence wire	3.60
Polished staples	3.45
Galvanized staples	3.70
Barbed wire, galvanized	3.40
Twisted barbless wire	3.40
Woven wire fence, base column.	74
Single loop bale ties, base col....	63

Chicago and Anderson, Ind., mill prices are $1 a ton over Pittsburgh base (on all products except woven wire fence, for which the Chicago price is $2 above Pittsburgh); Duluth, Minn., mill prices are $2 a ton over Pittsburgh, except for woven wire fence, which is $3 over Pittsburgh and Birmingham mill prices are $3 a ton over Pittsburgh.

On wire nails, barbed wire and staples, prices at Houston, Galveston and Corpus Christi, Tex., New Orleans, Lake Charles, La., and Mobile, Ala., are $6 a ton over Pittsburgh.

On nails, staples and barbed wire, prices of $6 a ton above Pittsburgh are also quoted at Beaumont and Orange, Tex.

STEEL AND WROUGHT IRON PIPE AND TUBING

Welded Pipe

Base Discounts, f.o.b. Pittsburgh District and Lorain, Ohio, Mills

F.o.b. Pittsburgh only on wrought iron pipe.

Butt Weld

Steel In.	Black	Galv.	*Wrought Iron* In.	Black	Galv.
⅛	52	31	¼ & ⅜	.+13	+35
¼ to ⅜	..55	38½	½	20	1½
½	....59½	49	¾	26	8
¾	....62½	53	1 & 1¼	.30	14
1 to 3	...64½	55½	1½	34	16½
			2	....33½	16

Lap Weld

2	57	47½	2	....26½	10
2½ & 3	..60	50½	2½ to 3½	27½	12½
3½ to 6	..62	52½	4	....29½	16
7 & 8	..61	50½	4½ to 8	..28½	15
9 & 10	..60½	50	9 to 12	..24½	10
11 & 12	..59½	49			

Butt Weld, extra strong, plain ends

⅛	....50½	36½	¼ & ⅜	.+14	+48
¼ to ⅜	..52½	40½	½	21	4
½	....57½	48½	¾	27	10
¾	....61½	52½	1 to 2	..34	17½
1 to 3	63	55			

Lap Weld, extra strong, plain ends

2	55	46½	2	....29½	13½
2½ & 3	..59	50½	2½ to 4	..35	20½
3½ to 6	..62½	54	4½ to 6	..33½	19
7 & 8	..61½	51	7 & 8	..34½	19½
9 & 10	..60½	50	9 to 12	..28	15½
11 & 12	..59½	49			

On butt-weld and lap-weld steel pipe jobbers are granted a discount of 5%. On less-than-carload shipments prices are determined by adding 25 and 30% and the carload freight rate to the base card.

Note—Chicago district mills have a base two points less than the above discounts. Chicago delivered base is 2½ points less. Freight is figured from Pittsburgh, Lorain, Ohio, and Chicago district mills, the billing being from the point producing the lowest price to destination.

Boiler Tubes

Seamless Steel Commercial Boiler Tubes and Locomotive Tubes

(Net base prices per 100 ft. f.o.b. Pittsburgh in carload lots)

		Cold Drawn	Hot Rolled
1 in. o.d.	13 B.W.G.	$ 9.46	$ 8.41
1¼ in. o.d.	13 B.W.G.	11.21	9.96
1½ in. o.d.	13 B.W.G.	12.38	11.00
1¾ in. o.d.	13 B.W.G.	14.09	12.51
2 in. o.d.	13 B.W.G.	15.78	14.02
2¼ in. o.d.	13 B.W.G.	17.60	15.63
2½ in. o.d.	12 B.W.G.	19.37	17.21
2¾ in. o.d.	12 B.W.G.	21.22	18.85
2¾ in. o.d.	12 B.W.G.	22.49	19.98
3 in. o.d.	12 B.W.G.	23.60	20.97
3½ in. o.d.	10 B.W.G.	45.19	40.15
3½ in. o.d.	11 B.W.G.	29.79	26.47
4 in. o.d.	10 B.W.G.	36.96	32.83
5 in. o.d.	9 B.W.G.	56.71	50.38
6 in. o.d.	7 B.W.G.	87.07	77.35

Extra for less-carload quantities:

25,000 lb. or ft.	to	39,999 lb. or ft.	5	%
12,000 lb. or ft.	to	24,999 lb. or ft.	12½	%
6,000 lb. or ft.	to	11,999 lb. or ft.	25	%
2,000 lb. or ft.	to	5,999 lb. or ft.	35	%
Under 2,000 lb. or ft.			50	%

CAST IRON WATER PIPE

	Per Net Ton
*6-in. and larger, del'd Chicago.	$55.00
6-in. and larger, del'd New York	53.00
*6-in. and larger, Birmingham.	47.00
6-in. and larger, f.o.b. dock, San Francisco or Los Angeles....	56.00
F.o.b. dock, Seattle.....	56.00
4-in., f.o.b. dock, San Francisco or Los Angeles	59.00
F.o.b. dock, Seattle	59.00

Class "A" and gas pipe, $3 extra. 4-in. pipe is $3 a ton above 6-in.

Prices for lots of less than 200 tons. For 200 tons and over, 6-in. and larger is $46, Birmingham, and $54 delivered Chicago; and 4-in. pipe, $49, Birmingham, and $58 delivered Chicago.

BOLTS, NUTS, RIVETS, SET SCREWS

Bolts and Nuts

(F.o.b. Pittsburgh, Cleveland, Birmingham or Chicago)

	Per Cent Off List
Machine and carriage bolts:	
½ in. x 6 in. and smaller.	65 and 5*
Larger and longer up to 1 in.	60 and 10*
1⅛ in. and larger	60 and 5*
Lag bolts	60 and 10*
Plow bolts, Nos. 1, 2, 3 and 7	65 and 5
Hot pressed nuts, and c.p.c. and t nuts, square or hex. blank or tapped:	
½ in. and smaller	65
9/16 in. to 1 in. inclusive	60 and 5
1⅛ in. and larger	60

Jobbers discount on above items, 5 per cent.

* Less carload lots and less than full container quality. Less carload lots in full container quantity, an additional 10 per cent discount; carload lots and full container quantity, still another 5 per cent discount.

Semi-finished hexagon nuts, U.S.S. and S.A.E.:	
½ in. and smaller	60 and 10
9/16 in. to 1 in. inclusive	60 and 5
1⅛ in. and larger	60
Stove bolts in packages, nuts attached	72½
Stove bolts in packages, with nuts separate	72½ and 5
Stove bolts in bulk	80

On stove bolts freight is allowed to destination on 200 lb. and over.

Large Rivets

(½-in. and larger)

	Base per 100 Lbs.
F.o.b. Pittsburgh or Cleveland	$3.60
F.o.b. Chicago or Birmingham	3.70

Small Rivets

(7/16-in. and smaller)

	Per Cent Off List
F.o.b. Pittsburgh	65 and 5
F.o.b. Cleveland	65 and 5
F.o.b. Chicago and Birmingham	65 and 5

Cap and Set Screws

(Freight allowed up to but not exceeding 65c. per 100 lb. on lots of 200 lb. or more)

	Per Cent Off List
Milled cap screws, 1 in. dia. and smaller	50 and 10
Milled standard set screws, case hardened, 1 in. dia. and smaller	75
Milled headless set screws, cut thread ¾ in. and smaller	75
Upset hex. head cap screws U.S.S. or S.A.E. thread, 1 in. and smaller	60
Upset set screws, cup and oval points	75
Milled studs	65

Alloy and Stainless Steel

Alloy Steel Blooms, Billets and Slabs

F.o.b. Pittsburgh, Chicago, Canton, Massillon, Buffalo, Bethlehem. Base price, $60 a gross ton.

Alloy Steel Bars

F.o.b. Pittsburgh, Chicago, Buffalo, Bethlehem, Massillon or Canton.

Open-hearth grade, base	3.00c.
Delivered, Detroit	3.15c.

S.A.E. Series Numbers	Alloy Differential per 100 lb.
200 (½% Nickel)	$0.35
2100 (1½% Nickel)	0.75
2300 (3½% Nickel)	1.55
2500 (5% Nickel)	$2.25
3100 Nickel-chromium	0.70
3200 Nickel-chromium	1.35
3300 Nickel-chromium	3.80
3400 Nickel-chromium	3.20
4100 Chromium-molybdenum (0.15 to 0.25 Molybdenum).	0.55
4100 Chromium-molybdenum (0.25 to 0.40 Molybdenum).	0.75
4600 Nickel-molybdenum (0.20 to 0.30 Mo, 1.50 to 2.00 Ni.)	1.10
5100 Chrome steel (0.60-0.90 Cr.)	0.35
5100 Chrome steel (0.80-1.10 Cr.)	0.45
5100 Chromium spring steel....	0.15
6100 Chromium-vanadium bar...	1.20
6100 Chromium-vanadium spring steel	0.85
Chromium-nickel-vanadium ...	1.50
Carbon-vanadium	0.85

These prices are for hot-rolled steel bars. The differential for most grades in electric furnace steel is 50c. higher. Slabs with a section area of 16 in. and 2½ in. thick or over take the billet base.

Alloy Cold-Finished Bars

F.o.b. Pittsburgh, Chicago, Gary, Cleveland or Buffalo, 3.60c. base per lb. Delivered Detroit, 3.75c., carlots.

CORROSION & HEAT RESISTANT ALLOYS

(Base prices, cents per lb., f.o.b. Pittsburgh)

Chrome-Nickel

	No. 304	No. 302
Forging billets	21.25c.	20.40c.
Bars	25c.	24c.
Plates	29c.	27c.
Structural shapes	25c.	24c.
Sheets	36c.	34c.
Hot-rolled strip	23.50c.	21.50c.
Cold-rolled strip	30c.	28c.
Drawn wire	25c.	24c.

Straight Chrome

	No. 410	No. 430	No. 442	No. 446
Bars	18.50c.	19c.	22.50c.	27.50c.
Plates	21.50c.	22c.	25.50c.	30.50c.
Sheets	26.50c.	29c.	32.50c.	36.50c.
Hot strip	17c.	17.50c.	23c.	28c.
Cold stp.	22c.	22.50c.	28.50c.	36.50c.

TOOL STEEL

High speed	67c
High-carbon-chrome	43c.
Oil-hardening	24c.
Special	22c.
Extra	18c.
Regular	14c.

Prices for warehouse distribution to all points on or East of Mississippi River are 2c. a lb. higher. West of Mississippi quotations are 3c a lb. higher.

British and Continental

BRITISH

Per Gross Ton
f.o.b. United Kingdom Ports

Ferromanganese, export	£20 Nominal
Tin plate, per base box	25s. to 25s. 6d.
Steel bars, open-hearth.	£11
Beams, open-hearth	£10 12s. 6d.
Channels, open-hearth	£10 12s. 6d.
Angles, open-hearth	£10 12s. 6d.
Black sheets, No. 24 gage	£15
Galvanized sheets, No. 24 gage	£18 15s.

CONTINENTAL

Per Metric Ton, Gold £, f.o.b. Continental Ports

Current dollar equivalent is ascertained by multiplying gold pound prices by 124.14 to obtain franc equivalent and then converting at present rate of dollar-france exchange.

Billets, Thomas	£4 7s. 6d.
Wire rods, No. 5 B.W.G.	£6 10s.
Steel bars, merchant	£6
Sheet bars	£4 8s. 6d.
Plate ¼ in. and up	£7 7s.
Plate 3/16 in. and 5 mm.	£7 13s.
Sheet, ⅛ in.	£8 9s. 6d.
Beams, Thomas	£5 8s.
Angles (Basic)	£5 8s.
Hoops and strip, base	£6 10s.

IRON AND STEEL WAREHOUSE PRICES

PITTSBURGH*

Per Net Ton

Plates	3.70c.
Structural shapes	3.70c.
Soft steel bars and small shapes	3.80c.
Reinforcing steel bars	3.80c.
Cold-finished and screw stock:	
Rounds and hexagons	4.15c.
Squares and flats	4.15c.
Hot rolled strip incl. 3/16 in. thick, under 24 in. wide	4.00c.
Hoops	4.50c.
Hot-rolled annealed sheets (No. 24), 10 or more bundles	4.50c.
Galv. sheets (No. 24), 10 or more bundles	5.15c.
Hot-rolled sheets (No. 10)	3.75c.
Galv. corrug. sheets (No. 28), per square (more than 3750 lb.)	$4.48
Spikes, large .....1 to 24 kegs	3.90c.

Per Cent Off List

Track bolts, all sizes, per 100 count	55
Machine bolts, 100 count	**
Carriage bolts, 100 count	**
Nuts, all styles, 100 count	**
Large rivets, base per 100 lb.	$4.35
Wire, black, soft ann'l'd, base per 100 lb.	3.45c.
Wire, galv. soft, base per 100 lb.	3.85c.
Common wire nails, per keg	3.00c.
Cement coated nails, per keg	3.00c.

On plates, structurals, bars, reinforcing bars, bands, hoops and blue annealed sheets, base applies to orders of 400 to 9999 lb.

*Delivered in Pittsburgh switching district.

**Prices on application.

CHICAGO *Base per Lb.*

Plates and structural shapes	3.75c.
Soft steel bars, rounds	3.85c.
Soft steel bars, squares and hexagons	4.00c.
Cold-fin. steel bars:	
Rounds and hexagons	4.30c.
Flats and squares	4.30c.
Hot-rolled strip	4.10c.
Hot-rolled annealed sheets (No. 24)	4.60c.
Galv. sheets (No. 24)	5.25c.
Spikes (keg lots)	4.40c.
Track bolts (keg lots)	5.60c.
Rivets, structural (keg lots)	4.60c.
Rivets, boiler (keg lots)	4.70c.

Per Cent Off List

Machine bolts	*60
Carriage bolts	*60
Lag screws	*55 and 5
Hot-pressed nuts, sq. tap or blank	*60
Hot-pressed nuts, hex. tap or blank	*60
Hex. head cap screws	60
Cut point set screws	75
Flat head bright wood screws	62 and 20
Spring cotters	45
Stove bolts in full packages	72½
Rd. hd. tank rivets, 7/16 in. and smaller	55
Wrought washers	$4.00 off list
Black ann'l'd wire per 100 lb. to mfg. trade (No. 14 and heavier)	$4.55
Com. wire nails, 15 kegs or more, per keg	$3.20
Cement c't'd nails, 15 kegs or more, per keg	$3.20

On plates, shapes, bars, hot-rolled strip and heavy hot-rolled sheets, the base applies on orders of 400 to 3999 lb. All prices are f.o.b. consumers' plants within the Chicago switching district.

*These are quotations delivered to city trade for quantities of 100 lb. or more. For lots of less than 100 lb., the quotation is 60 per cent off. Discounts applying to country trade are 70 per cent off, f.o.b. Chicago, with full or partial freight allowed up to 50c. per 100 lb.

NEW YORK

Base per Lb.

Plates, ¼ in. and heavier	4.00c.
Structural shapes	3.97c.
Soft steel bars, round	4.12c.
Iron bars, Swed. charcoal	7.00 to 7.25c.
Cold-fin. shafting and screw stock:	
Rounds and hexagons	4.57c.
Flats and squares	4.57c.
Cold-rolled; strip, soft and quarter hard	3.92c.
Hoops	4.32c.
Bands	4.32c.
Hot-rolled sheets (No. 10)	4.00 to 4.07c.
Hot-rolled ann'l'd sheets (No. 24*)	4.50 to 4.82c.
Galvanized sheets (No. 24*)	5.47c.
Long terne sheets (No. 24)	5.50 to 6.20c.
Armco iron, galv. (No. 24†)	6.25c.
Toncan iron, galv. (No. 24†)	6.25c.
Galvanneal (No. 24†)	6.60c.
Armco iron, hot-rolled annealed (No. 24†)	5.65c.
Toncan iron, hot-rolled annealed (No. 24†)	5.65c.
Armco iron hot-rolled (No. 10†)	4.60c.
Toncan iron, hot-rolled (No. 10†)	4.60c.
Cold-rolled sheets (No. 20) for quantities 400 to 1499 lb.	
Standard quality	5.40c.
Deep drawing	6.05c.
Stretcher leveled	6.05c.
SAE, 2300, hot-rolled	7.82c.
SAE, 3100, hot-rolled	6.37c.
SAE, 6100, hot-rolled, annealed	10.52c.
SAE, 2300, cold-rolled	9.00c.
SAE, 3100, cold-rolled, annealed	8.55c.
Floor plate, ⅛ in. and heavier	5.90c.
Standard tool steel	12.50c.
Wire, black, annealed (No. 9)	4.25c.
Wire, galv. (No. 9)	4.60c.
Tire steel, 1 x ½ in. and larger	4.61c.
Open-hearth spring steel	4.75c. to 10.25c.
Common wire nails, base per keg	3.25c.

Per Cent Off List

Machine bolts, square head and nut: All diameters. Prices on application	
Carriage bolts, cut thread: All diameters. Prices on application	

* No. 28 and lighter, 36 in. wide, 20c. higher per 100 lb.

† 125 lb. and more.

ST. LOUIS *Base per Lb.*

Plates and struc. shapes	3.99c.
Bars, soft steel (rounds and flats)	4.09c.
Bars, soft steel(squares, hexagons, ovals, half ovals and half rounds)	4.24c.
Cold - fin. rounds, shafting, screw stock	4.54c.
Hot - rolled annealed sheets (No. 24)	4.84c.
Galv. sheets (No. 24*)	5.49c.
Hot-rolled sheets (No. 10)	4.09c.
Black corrug. sheets (No. 24*)	4.89c.
2 galv. corrug. sheets	5.54c.
Structural rivets	4.94c.
Boiler rivets	5.04c.

Per Cent Off List

Tank rivets, 7/16 in. and smaller	55
Machine and carriage bolts, lag screws, fitting up bolts, bolt ends, plow bolts, hot-pressed nuts, square and hexagon, tapped or blank, semi-finished nuts; all quantities	65

* No. 26 and lighter take special prices.

PHILADELPHIA

Base Per Lb.

*Plates, ¼-in. and heavier	3.80c.
*Structural shapes	3.30c.
*Soft steel bars, small shapes, iron bars (except bands)	3.90c.
‡Reinforc. steel bars, sq. twisted and deformed	3.43c.
Cold-finished steel bars	4.53c.
*Steel hoops	4.25c.
*Steel bands, No. 12 and 3/16 in. incl.	4.00c.
Spring steel	5.40c.
†Hot-rolled anneal. sheets (No. 24)	4.65c.
†Galvanized sheets (No. 24)	5.30c.
*Hot-rolled annealed sheets (No. 10)	3.90c.
Diam. pat. floor plates, ¼ in.	5.45c.

These prices are subject to quantity differential except on reinforcing and Swedish iron bars.

*Base prices subject to deduction on orders aggregating 4000 lb. or over.

†For 25 bundles or over.

‡For less than 2000 lb.

CLEVELAND

Base per Lb.

Plates and struc. shapes	3.86c.
Soft steel bars	3.75c.
†Reinforc. steel bars	2.60c.
‡Cold-finished steel bars	4.30c.
Hot-rolled strip, 6 in. wide and under	4.16c.
Cold-finished strip	3.60c.
Hot-rolled annealed sheets (No. 24)	4.66c.
Galvanized sheets (No. 24)	5.31c.
Hot-rolled sheets (No. 10)	3.91c.
Hot-rolled 3/16 in. 24 to 48 in. wide sheets	3.91c.
Floor plates, 3/16 in. and heavier	5.76c
*Black ann'l'd wire, per 100 lb.	$3.40
*No. 9 galv. wire, per 100 lb.	3.80
*Com. wire nails, base per keg	2.95

Per Cent Off List

Machine and carriage bolts, small	65 and 5
Large	60 and 10
Nuts, 100 count	
½ in. and smaller	65 and 5
9/16 in. to 1 in.	60 and 10

†Outside delivery 10c. less.

*For 5000 lb. or less.

‡Plus switching and cartage charges and quantity differentials up to 50c.

CINCINNATI *Base per Lb.*

Plates and struc. shapes	3.95c.
Floor plates	5.85c.
Bars, rounds, flats and angles	4.05c.
Other shapes	4.20c.
Rail steel reinforc. bars	3.75c.
Hoops and bands, 3/16 in. and lighter	4.25c.
Cold-finished bars	4.50c.
Hot-rolled annealed sheets (No. 24) 3500 lb. or more	4.60c.
Galv. sheets (No. 24) 3500 lb. or more	$5.25
Hot-rolled sheets (No. 10)	4.00c.
Small rivets	55 per cent off list
No. 9 ann'l'd wire, per 100 lb. (1000 lb. or over)	$2.88
Com. wire nails, base per keg:	
Any quantity less than carload	3.04
Cement c't'd nails, base 100-lb. keg	3.50
Chain. lin. per 100 lb.	8.35

Net per 100 Ft.

Seamless steel boiler tubes, 2-in.	$21.80
4-in.	52.45
Lap-welded steel boiler tubes, 2-in.	20.73
4-in.	48.41

BUFFALO *Base per Lb.*

Plates	3.92c.
Struc. shapes	3.80c.
Soft steel bars	3.90c.
Reinforcing bars	3.10c.
Cold-fin. flats and sq.	4.35c.
Rounds and hex.	4.35c.
Cold-rolled strip steel	3.79c.
Hot-rolled annealed sheets (No. 24)	4.80c.
Heavy hot-rolled sheets (3/16 in., 24 to 48 in. wide)	3.97c.
Galv. sheet (No. 24)	5.45c.
Bands	4.22c.
Hoops	4.22c.
Heavy hot-rolled sheets	3.97c.
Com. wire nails, base per keg	$3.26
Black wire, base per 100 lb. (2500-lb lots or under)	4.55c.
(Over 2500 lb.)	4.45c.

BOSTON *Base per Lb.*

Channels, angles	4.20c.
Tees and zees, under 3"	4.45c.
H beams and shapes	4.07c.
Plates — Sheared, tank and univ. mill, ¼ thick and heavier	4.08c.
Floor plates, diamond pattern	6.03c.
Bar and bar shapes(mild steel)	4.20c.
Bands 3/16 in. thick and No. 12 ga. incl.	4.40 to 5.40
Half rounds, half ovals, ovals and bevels	5.45c.
Tire steel	5.45c.
Cold-rolled strip steel	3.845c.
Cold-finished rounds, squares and hexagons	4.65c.
Cold-finished flats	4.65c.
Blue annealed sheets, No. 10 ga.	3.90c.
One pass cold-rolled sheets No. 24 ga	4.50c.
Galvanized steel sheets, No. 24 ga.	5.05c.
Lead coated sheets, No. 24 ga.	6.15c.

Price delivered by truck in metropolitan Boston, subject to quantity differentials.

DETROIT

	Base per Lb.
Soft steel bars	3.94c.
Structural shapes	3.95c.
Plates	3.95c.
Floor plates	5.85c.
Hot-rolled annealed sheets (No. 24)*	4.69c.
Hot-rolled sheets (No. 10)	3.94c.
Galvanized sheets (No. 24)*	5.40c.
Bands and hoops	4.19c.
Cold-finished bars	4.30c.
Cold-rolled strip	3.78c.
Hot-rolled alloy steel (S.A.E. 3100 Series)	6.44c.

Quantity differential on bars, plates, structural shapes, bands, hoops, floor plates and heavy hot-rolled: Under 100 lb., 1.50c. over base; 100 to 399 lb., base plus .50c.; 400 to 3999 lb. base; 4000 to 9999 lb., base less .10c.; 10,000 lb. and over, less .15c.

* Under 400 lb., .50c. over base; 400 to 1499 lb., base; 1500 to 3499 lb., base less .10c.; 3500 lb. and over, base less .15c.

Prices delivered by truck in metropolitan Detroit, subject to quantity differentials covering shipment at one time.

Galvanized and hot-rolled annealed may not be combined to obtain quantity deductions.

MILWAUKEE

	Base per Lb.
Plates and structural shapes	3.86c.
Soft steel bars, rounds up to 8 in., flats and fillet angles	3.96c.
Soft steel bars, squares and hexagons	4.11c.
Hot-rolled strip	4.21c.
Hot-rolled annealed sheets (No. 24)	4.71c.
Galvanized sheets (No. 24)	5.36c.
Cold-finished steel bars	4.41c.
Structural rivets (keg lots)	5.16c.
Boiler rivets, cone head (keg lots)	5.26c.
Track spikes (keg lots)	4.61c.
Track bolts (keg lots)	5.81c.
Black annealed wire (No. 6 to No. 9 incl.)	4.05c.
Com. wire nails and cement coated nails 1 to 14 kegs	3.25c.

	Per Cent Off List
Machine bolts and carriage bolts, ½x6 and smaller or shorter	65
Larger and longer up to 1 in., diam.	60-5
1⅛ in. and larger	60
Coach and lag screws	60-5
Hot-pressed nuts, sq. and hex. tapped or blank, 1-199 lb.	50
200 lb. and over:	
½ in. and smaller	65
9/16 to 1 in.	60- 5
1⅛ in. and over	50-10-5

Prices given above are delivered Milwaukee.

On plates, shapes, bars, hot-rolled strip and heavy hot-rolled sheets, the base applies on orders of 400 to 3999 lb. On galvanized and No. 24 hot-rolled annealed sheets the prices given apply on orders of 400 to 1500 lb. On cold-finished bars the prices are for orders of 1000 lb. or more of a size.

ST. PAUL

	Base per Lb.
Mild steel bars, rounds	4.10c.
Structural shapes	4.00c.
Plates	4.00c.
Cold-finished bars	4.55c.
Hot-rolled annealed sheets, No. 24	4.85c.
Galvanized sheets, No. 24	5.50c.

On mild steel bars, shapes and plates the base applies on 400 to 14,999 lb. On hot-rolled sheets, galvanized sheets and cold-rolled sheets base applies on 15,000 lb. and over. Base on cold-finished bars is 1000 lb. and over of a size.

BALTIMORE

	Base per Lb.
Mild steel bars and small shapes	4.00c.
Structural shapes	3.90c.
Reinforcing bars, 5 to 15 tons	3.16c.
Plates	3.90c.
Hot-rolled sheets, No. 10	3.95c.
Bands	4.20c.
Hoops	4.45c.
Special threading steel	4.15c.
Checkered floor plates ¼ in. and heavier	5.80c.
Galvanized sheets, No. 24, 100 bdls. or more	$4.70
Cold-rolled rounds, hexagons, squares and flats, 1000 lb. and more	$4.50

On plates, shapes, bars, hot-rolled strip and heavy hot-rolled sheets the base applies on orders 400 to 3999 lb.

All prices are f.o.b. consumers' plants.

For second zone add 10c. per 100 lb. for trucking.

CHATTANOOGA

	Base per Lb.
Mild steel bars	4.21c.
Iron bars	4.21c.
Reinforcing bars	4.21c.
Structural shapes	4.11c.
Plates	4.11c.
Hot-rolled sheets No. 10	4.16c.
Hot-rolled annealed sheets, No. 24*	4.06c.
Galvanized sheets No. 24*	4.76c.
Steel bands	4.41c.
Cold-finished bars	4.86c.

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* Plus mill item extra.

MEMPHIS

	Base per Lb.
Mild steel bars	4.31c.
Shapes, bar size	4.31c.
Iron bars	4.31c.
Structural shapes	4.21c.
Plates	4.21c.
Hot-rolled sheets, No. 10	4.26c.
Hot-rolled annealed sheets, No. 24	4.91c.
Galvanized sheets, No. 24	5.66c.
Steel bands	4.56c.
Cold-drawn rounds	4.80c.
Cold-drawn flats, squares, hexagons	6.80c.
Structural rivets	5.15c.
Bolts and nuts, per cent off list	55
Small rivets, per cent off list	55

NEW ORLEANS

	Base per Lb.
Mild steel bars	4.20c.
Reinforcing bars	3.24c.
Structural shapes	4.10c.
Plates	4.10c.
Hot-rolled sheets, No. 10	4.35c.
Steel bands	4.75c.
Cold-finished steel bars	5.10c.
Structural rivets	4.85c.
Boiler rivets	4.85c.
Common wire nails, base per keg	$3.30
Bolts and nuts, per cent off list	60

PACIFIC COAST

	Base per Lb. San Francisco	Los Angeles	Seattle
Plates, tank and U. M.	4.05c.	4.30c.	4.25c.
Shapes, standard	4.05c.	4.30c.	4.25c.
Soft steel bars	4.20c.	4.30c.	4.45c.
Reinforcing bars, f.o.b. cars dock Pacific ports	2.975c.	2.975c.	3.625c.
Hot-rolled annealed sheets (No. 24)	5.15c.	5.05c.	5.35c.
Hot-rolled sheets (No. 10)	4.30c.	4.50c.	4.50c.
Galv. sheets (No. 24 and lighter)	5.85c.	5.55c.	5.90c.
Galv. sheets (No. 22 and heavier)	6.10c.	5.70c.	5.90c.
Cold-finished steel Rounds	6.80c.	6.85c.	7.10c.
Squares and hexagons	8.05c.	8.10c.	7.10c.
Flats	8.55c.	8.60c.	8.10c.
Common wire nails—base per keg less carload	$3.65	$3.60	$3.70

All items subject to differentials for quantity.

REFRACTORIES PRICES

Fire Clay Brick

	Per 1000 f.o.b. Works
First quality, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	$54.00
First quality, New Jersey	56.00
Select, Ohio	49.00
Second quality, Pennsylvania, Maryland, Kentucky, Missouri and Illinois	49.00
Second quality, New Jersey	51.00
No. 1, Ohio	46.00
Ground fire clay, per ton	8.00

5 per cent trade discount on fire clay brick, except for New Jersey, quoted at net price.

Silica Brick

	Per 1000 f.o.b. Works
Pennsylvania	$54.00
Chicago District	63.00
Birmingham	54.00
Silica cement per net ton (Eastern)	9.50

5 per cent trade discount on silica brick.

Chrome Brick

	Per Net Ton
Standard f.o.b. Baltimore, Plymouth Meeting and Chester	$49.00
Chemically bonded f.o.b. Baltimore, Plymouth Meeting and Chester, Pa.	49.00

Magnesite Brick

	Per Net Ton
Standard f.o.b. Baltimore and Chester, Pa.	$69.00
Chemically bonded, f.o.b. Baltimore	59.00

Grain Magnesite

	Per Net Ton
Imported, f.o.b. Baltimore and Chester, Pa. (in sacks)	$45.00
Domestic, f.o.b. Baltimore and Chester, in sacks	43.00
Domestic, f.o.b. Chewelah, Wash.	25.00

RAW MATERIALS PRICES

PIG IRON

No. 2 Foundry

F.o.b. Everett, Mass.	$25.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa., and Sparrows Point, Md.	25.00
Delivered Brooklyn	27.27
Delivered Newark or Jersey City	26.39
Delivered Philadelphia	25.76
F.o.b. Neville Island, Sharpsville and Erie, Pa.; Buffalo, Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Granite City, Ill.	24.00
F.o.b. Jackson, Ohio	25.75
Delivered Cincinnati	24.07
F.o.b. Duluth	24.50
F.o.b. Provo, Utah	22.00
Delivered San Francisco, Los Angeles or Seattle	25.00
F.o.b. Birmingham*	20.38

* Delivered prices on southern iron for shipment to northern points are 38c. a ton below delivered prices from nearest northern basing point on iron with phosphorus content of 70 and over.

Malleable

Base prices on malleable iron are 50c. a ton above No. 2 foundry quotations at Everett, Eastern Pennsylvania furnaces, Erie and Buffalo. Elsewhere they are the same.

Basic

Fo.b. Everett, Mass.	$25.75
F.o.b. Bethlehem, Birdsboro, Swedeland and Steelton, Pa., and Sparrows Point, Md.	24.50
F.o.b. Buffalo	23.00
F.o.b. Neville Island, Sharpsville and Erie, Pa.; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago and Granite City, Ill.	23.50
Delivered Cincinnati	24.51
Delivered Canton, Ohio	24.76
Delivered Mansfield, Ohio	25.26
F.o.b. Jackson, Ohio	25.50
F.o.b. Birmingham	19.00

Bessemer

F.o.b. Everett, Mass.	$26.75
F.o.b. Bethlehem, Birdsboro and Swedeland, Pa.	26.00
Delivered Boston Switching District	26.50
Delivered Newark or Jersey City	27.39
Delivered Philadelphia	26.76
F.o.b. Buffalo and Erie, Pa., and Duluth	25.00
F.o.b. Neville Island and Sharpsville, Pa.; Youngstown, Cleveland, Toledo and Hamilton, Ohio; Detroit; Chicago	24.50
F.o.b. Birmingham	25.50
Delivered Cincinnati	25.51
Delivered Canton, Ohio	25.76
Delivered Mansfield, Ohio	26.26

Low Phosphorus

Basing points: Birdsboro, Pa., Steelton, Pa., and Standish, N. Y.	$28.50

Gray Forge

Valley or Pittsburgh furnace	$23.50

Charcoal

Lake Superior furnace	$27.00
Delivered Chicago	30.04

Canadian Pig Iron

Per Gross Ton

Delivered Toronto

No. 1 fdy., sil. 2.25 to 2.75	$26.50
No. 2 fdy., sil. 1.75 to 2.25	25.50
Malleable	26.00
Basic	25.50

Delivered Montreal

No. 1 fdy., sil. 2.25 to 2.75	$27.50
No. 2 fdy., sil. 1.75 to 2.25	27.00
Malleable	27.50
Basic	27.00

FERROALLOYS

Ferromanganese

F.o.b. New York, Philadelphia, Baltimore, Mobile or New Orleans.

Per Gross Ton

Domestic, 80% (carload)	$102.50

Spiegeleisen

Per Gross Ton Furnace

Domestic, 19 to 21%	$33.00
F.o.b. New Orleans	33.00

Electric Ferrosilicon

Per Gross Ton Delivered

50% (carloads)	$69.50
50% (ton lots)	77.00
75% (carloads)	126.00
75% (ton lots)	136.00

Silvery Iron

Per Gross Ton

F.o.b. Jackson, Ohio, 5.00 to 5.50%	$27.50

For each additional 0.5% silicon up to 17%, 50c. a ton is added.

The lower all-rail delivered price from Jackson or Buffalo is quoted with freight allowed. Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Manganese, each unit over 2%, $1 a ton additional. Phosphorus 0.75% or over, $1 a ton additional.

Bessemer Ferrosilicon

F.o.b. Jackson, Ohio, Furnace

Per Gross Ton

10.00 to 10.50%	$33.50
10.51 to 11.00%	34.00
11.01 to 11.50%	34.50
11.51 to 12.00%	35.00
12.01 to 12.50%	35.50
12.51 to 13.00%	36.00
13.01 to 13.50%	36.50
13.51 to 14.00%	37.00
14.01 to 14.50%	37.50
14.51 to 15.00%	38.00
15.01 to 15.50%	38.50
15.51 to 16.00%	39.00
16.01 to 16.50%	39.50
16.51 to 17.00%	40.00

Manganese 2 to 3%, $1 a ton additional. For each unit of manganese over 3%, $1 a ton additional. Phosphorus 0.75% or over, $1 a ton additional.

Base prices at Buffalo are $1.25 a ton higher than at Jackson.

Other Ferroalloys

Ferrotungsten, per lb. contained W del., carloads	$1.80
Ferrotungsten, lots of 5000 lbs.	1.85
Ferrotungsten, smaller lots	1.90
Ferrochromium, 4 to 6% carbon and up, 65 to 70% Cr per lb. contained Cr delivered, in carloads, and contract	10.50c.*
Ferrochromium, 2% carbon	16.50c. to 17.00c.*
Ferrochromium, 1% carbon	17.50c. to 18.00c.*
Ferrochromium, 0.10% carbon	19.50c. to 20.00c.*
Ferrochromium, 0.06% carbon	20.00c. to 20.50c.*
Ferrovanadium, del. per lb. contained V.	$2.70 to $2.90
Ferrocolumbium, per lb. contained columbium, f.o.b. Niagara Falls, N. Y.	$2.50*
Ferrocarbontitanium, 15 to 18% Ti, 7 to 8% C, f.o.b. furnace carload and contract per net ton	$142.50
Ferrocarbontitanium, 17 to 20% Ti, 3 to 5% C, f.o.b. furnace, carload and contract, per net ton	$157.50
Ferrophosphorus, electric, or blast furnace material, in carloads, f.o.b. Anniston, Ala., for 18%, with $3 unitage, freight equalized with Rockdale, Tenn., per gross ton	63.50
Ferrophosphorus, electric, 24%, in carlots, f.o.b. Anniston, Ala., per gross ton with $3 unitage, freight equalized with Nashville, Tenn.	80.00
Ferromolybdenum, per lb. Mo del.	95c.
Calcium molybdate, per lb. Mo del.	80c.
Silico spiegel, per ton, f.o.b. furnace, carloads	$45.00
Ton lots or less, per ton	50.00
Silico-manganese, gross ton, delivered.	
3%	101.50
2.50% carbon grade	106.50
2% carbon grade	111.50
1% carbon grade	121.50

* Spot prices are $5 a ton higher. Spot premium on 75 per cent ferrosilicon is $10 a ton.

ORES

Lake Superior Ores

Delivered Lower Lake Ports

Per Gross Ton

Old range, Bessemer, 51.50%	$5.25
Old range, non-Bessemer, 51.50%	5.10
Mesabi, Bessemer, 51.50%	5.10
Mesabi, non-Bessemer, 51.50%	$4.95
High phosphorus, 51.50%	4.85

Foreign Ore

C.i.f. Philadelphia or Baltimore

Per Unit

Iron, low phos., copper free, 55 to 58% dry, Algeria, nominal	17.00c.
Iron, low phos., Swedish, average, 68½% iron	Nominal
Iron, basic or foundry, Swedish, aver. 65% iron	Nominal
Iron, basic or foundry, Russian, aver. 65% iron	Nominal
Man., Caucasian, washed 52%	47c.
Man., African, Indian, 44-48%	Nominal
Man., African, Indian, 49-51%	Nominal
Man., Brazilian, 46 to 48½%	Nominal

Per Net Ton Unit

Tungsten, Chinese, wolframite, duty paid delivered nominal	$23.50 to $25.50
Tungsten, domestic, scheelite delivered	Nominal
Chrome ore (lump) c.i.f. Atlantic Seaboard, per gross ton:	
South African (low grade)	$16.00
Rhodesian, 45%	23.00
Rhodesian, 48%	26.50
Turkish, 48-49%	25.50 to $26.50
Turkish, 45-46%	23.50 to 24.00
Turkish, 44%	19.00 to 19.50
Chrome concentrates (Turkish) c.i.f. Atlantic Seaboard, per gross ton:	
50%	$24.50 to $25.00
48-49%	25.50 to 26.50

FLUORSPAR

Per Net Ton

Domestic, washed gravel, 85-5, f.o.b. Kentucky and Illinois mines, all rail	$20.00
Domestic, barge and rail	$19.50 to 21.50
No. 2 lump, 85-5, f.o.b. Kentucky and Illinois mines	21.00
Foreign, 85% calcium, fluoride, not over 5% silicon, c.i.f. Atlantic ports, duty paid	24.50
Domestic No. 1 ground bulk, 95 to 98% calcium fluoride, not over 2½% silicon, f.o.b. Illinois and Kentucky mines	35.00

FUEL OIL

Per Gal.

F.o.b. Bayonne or Baltimore, No. 3 distillate	5.25c.
F.o.b. Bayonne or Baltimore, No. 4 industrial	5.25c.
Del'd Ch'go, No. 3 industrial	4.15c.
Del'd Ch'go, No. 5 industrial	4.00c.
Del'd Cleve'd, No. 3 distillate	5.75c.
Del'd Cleve'd No. 4 industrial	5.75c.
Del'd Cleve'd No. 5 industrial	5.00c.

COKE AND COAL

Coke *Per Net Ton*

Furnace, f.o.b. Connellsville, Prompt	$4.35 to $4.60
Foundry, f.o.b. Connellsville, Prompt	5.00 to 6.25
Foundry, by-product, Chicago ovens	10.25
Foundry, by-product, del'd New England	12.50
Foundry, by-product, del'd Newark or Jersey City	10.85 to 11.30
Foundry, by-product, Philadelphia	10.60
Foundry, by-product, delivered Cleveland	11.00
Foundry, by-product, delivered Cincinnati	10.50
Foundry, Birmingham	7.50
Foundry, by-product, del'd St. Louis industrial district	11.00 to 11.50
Foundry, from Birmingham, f.o.b. cars docks, Pacific ports	14.75

Coal *Per Net Ton*

Mine run steam coal, f.o.b. W. Pa. mines	$1.50 to $1.75
Mine run coking coal, f.o.b. W. Pa.	1.75 to 1.90
Gas coal, ¾-in. f.o.b. Pa. mines	2.00 to 2.25
Mine run gas coal, f.o.b. Pa. mines	1.80 to 2.00
Steam slack, f.o.b. W. Pa. mines	1.00 to 1.25
Gas slack, f.o.b. W. Pa. mines	1.20 to 1.45

British Committee Reports on Future Of Iron and Steel Industry

LONDON (*Special Correspondence*).—The policy pursued by the British Government since 1932 has contributed materially to rehabilitate the iron and steel industry of the United Kingdom and put it on a profit-making basis, states the Import Duties Advisory Committee in its report on the present position and future development of the iron and steel industry, just issued in London.

That policy has also assisted the promotion of a comprehensive organization capable of exercising a powerful influence on the conduct of the industry as a whole, and able to negotiate with its foreign competitors on equal terms.

The committee expresses the view that there cannot be a return to the conditions in existence before 1932; and that the State cannot divest itself of all responsibility for the conduct of the industry.

"The problem," it is added, "is to secure the systematic planning of the industry as a whole and the maintenance and development of internal coordination and cooperation, with the aid of a tariff so far as necessary and with the continuance of international agreements, while at the same time avoiding the evils of monopoly, safeguarding the public interest, and fostering efficiency."

A fundamental condition of future planning is the existence of comprehensive and well-organized associations, which should be affiliated with the British Iron and Steel Federation.

While associations of suppliers of materials should enter into arrangements with any organized body of consumers, preferential treatment under such arrangements should not be such as to make it difficult or impossible for the outside concerns to carry on.

"Quota schemes," adds the report, "may be considered expedient in some circumstances, but should not be introduced by an association without the approval of the federation, which should set up a special committee to review such schemes and deal with questions arising under them.

"Any producer regarding himself as unfairly treated should have a right of appeal to some body outside the particular association concerned, and special provision should be made for the impartial assessment of quotas for newcomers to the industry.

Price Regulation

"A policy of price regulation is inherent in the new organization of the industry, and the method of control adopted by the federation appears to be well-devised and in the interests of producers and consumers alike. In regard to royalty rebates, quota schemes, and price regulations, the policy pursued by the federation should be subject to a general oversight by the independent body referred to."

The report says that while demand (as at present) tends to outrun supply, special action may be required to keep high cost producers in production; in the long run production must be adjusted by the elimination of high cost units if the industry is to remain competitively efficient.

It is added that the proposal that a central stabilization fund to subsidize less efficient plants or plants less favorably located should be applied with great caution.

The use of export rebates should be regarded as an exceptional measure, applicable only where there would be a decline or complete loss of trade.

The plan of scientific research by the industry, the report states, is working well, is eminently suited to conditions and requirements, and has proved of great value. Further consideration, however, should be given to the greater standardization of the dimensions and specifications of iron and steel products.

Other recommendations include an inquiry into dock facilities and charges; economy in transport costs by rearrangement of production and distribution, and greater coordination of the arrangements for distribution at the producers' end.

Germany Conserving Steel in Building

New regulations regarding the use of iron for building purposes have been issued in Berlin. In the building of private houses and settlements it is ultimately planned that the content, in cubic meters, of the house must determine the kilograms of iron (or steel) which may be used. The new regulations are not so drastic, but strongly recommend that the use of iron be strictly limited. Iron may not be replaced by wood, as the latter is required for other purposes, and the larger use of cement and stone is advised. Houses must be so designed as to reduce piping for gas and water. As little metal as possible is to be used for roofs, and metal railings are to be replaced by hedges or brick walls.

Japanese Steel Production Gains

TOKYO (*Special Correspondence*).—Production of pig iron, steel bar, cast iron and other metals products in Japan, Korea and Manchukuo for April compared with the corresponding month a year ago is reported as follows:

	—Metric Tons—	
	April, 1937	April, 1936
Pig Iron:		
Japan and Korea...	230,707	177,294
Manchukuo	51,791	53,471
Steel Bars:		
Japan and Korea...	499,784	298,993
Manchukuo	29,848	25,892
Cast Iron:		
Japan and Korea...	14,025	9,741
Manchukuo	5	....
Carbon Steel (market billets):		
Japan and Korea...	26,240	9,993
Manchukuo	7,664	5,928
Carbon Steel (sheet bars):		
Japan and Korea...	26,240	29,049
Manchukuo	....	....
Tempered Steel:		
Japan and Korea...	8,853	5,860
Manchukuo	....	....
Rolled Steel:		
Japan and Korea...	413,953	337,861
Manchukuo	16,543	11,409

Machine Tool Uses Shown at Exposition

"HOW Machine Tools Serve You" is graphically illustrated to visitors at the Great Lakes Exposition in Cleveland in a series of dioramas and panels. Machine tools contribute to everyday life through the creation of more leisure for recreation, the building of agricultural instruments, home appliances and modern transportation. Animated charts and panels show that machinery makes jobs grow faster than population, has increased employment and purchasing power, has doubled factory jobs since 1899. The exhibit is sponsored by the National Machine Tool Builders' Association.

Imports (In Gross Tons)	May		Five Months Ended May	
	1937	1936	1937	1936
Pig iron	6,361	15,296	52,324	80,714
Sponge iron	302	....	1,757	1,128
Ferromanganese[1]	2,427	2,623	13,834	9,795
Spiegeleisen	787	4,589	6,637	12,089
Ferrochrome[2]	42	....	201	1
Ferrosilicon[3]	232	67	699	375
Other ferroalloys[4]	....	1	52	1
Scrap	9,173	15,695	27,685	46,512
Pig iron, ferroalloys and scrap	*19,324*	*38,271*	*103,189*	*150,615*
Steel ingots, blooms, etc.	....	....	124	61
Billets, whether solid or hollow	198	78	874	310
Wire rods	1,293	1,690	7,275	8,492
Semi-finished steel	*1,491*	*1,768*	*8,273*	*8,863*
Concrete reinforcement bars	771	682	3,410	1,208
Hollow steel bars	273	192	1,145	846
Merchant steel bars	4,036	3,805	24,924	16,531
Iron slabs	....	....	1	....
Iron bars	94	67	926	490
Boiler and other plate	....	....	176	52
Sheets, skelp and saw plate	1,536	1,523	7,171	9,117
Die blocks or blanks, etc.	2	1	55	89
Tin plate	34	38	105	127
Structural shapes	8,962	4,946	43,009	22,270
Sheet piling	214	88	1,068	864
Rails and track material	438	402	3,707	2,973
Welded pipe	943	395	4,804	2,226
Other pipe	4,076	937	12,538	7,163
Cotton ties	....	....	349	88
Other hoops and bands	2,393	2,373	12,953	9,937
Barbed wire	962	1,069	6,510	8,662
Round iron and steel wire	484	480	2,438	1,916
Telegraph and telephone wire	....	....	8	32
Flat wire and steel strips	366	261	1,505	1,204
Wire rope and strand	306	163	1,460	1,046
Other wire	428	85	1,647	639
Nails, tacks and staples	1,159	1,595	8,711	11,324
Bolts, nuts and rivets	16	80	246	219
Horse and mule shoes	47	44	134	167
Rolled and finished steel	*27,540*	*19,226*	*139,000*	*99,190*
Malleable iron pipe fittings	45	3	205	20
Cast iron pipe and fittings	178	47	1,106	109
Castings and forgings	472	76	1,970	438
Total	49,050	59,391	253,743	259,235

[1] Manganese Content. [2] Chrome Content. [3] Silicon Content. [4] Alloy Content.

Exports (In Gross Tons)	May		Five Months Ended May	
	1937	1936	1937	1936
Pig iron	117,598	121	200,657	833
Ferromanganese and spiegeleisen	16	60	1,242	210
Other ferroalloys	254	156	875	966
Scrap, iron and steel	630,671	213,366	1,620,114	858,670
Scrap, tin plate	3,495	....	13,260	8,825
Waste-waste tin plate	3,513	4,073	18,560	13,360
Pig iron, ferroalloys and scrap	*755,547*	*217,776*	*1,854,708*	*882,864*
Ingots, blooms, billets, sheet bars	99,215	982	116,586	5,201
Ingots, etc., alloy steel incl. stainless	336	....	1,247	....
Skelp	10,084	5,188	31,537	12,345
Wire rods	5,872	3,183	20,396	17,614
Semi-finished steel	*115,507*	*9,353*	*169,766*	*35,160*
Bars, plain and reinforcing	12,076	5,491	45,741	22,461
Bars, alloy steel	870	....	2,916	....
Bars, stainless steel	8	....	81	....
Iron bars	571	108	1,148	549
Plates, plain and fabricated	25,995	6,360	105,875	26,758
Plates, alloy steel	852	....	2,163	....
Plates, stainless	5	....	16	....
Sheets, galvanized steel	5,162	4,830	27,094	23,766
Sheets, galvanized iron	516	219	2,572	571
Sheets, black, plain steel	22,570	10,106	96,512	55,016
Sheets, alloy steel	1,098	....	1,239	....
Sheets, stainless steel	79	....	265	....
Sheets, black iron	560	605	3,605	3,097
Hoops, bands, strips, plain steel	7,990	4,169	49,771*	23,383
Hoops, bands, strip steel, alloy	43	....	520	....
Hoops, bands, strip steel, stainless	44	....	279	....
Tin plate and taggers' tin	28,380	25,889	126,417	105,110
Terne plate (including long terne)	498	373	2,775	1,469
Structural shapes, plain material	8,677	3,166	48,081	19,516
Structural material, fabricated	3,135	1,641	14,175	8,293
Sheet piling	175	257	2,050	1,277
Tanks, steel	3,074	1,428	11,908	11,099
Steel rails	9,486	4,440	47,271	25,947
Rail fastenings, switches, spikes, etc.	2,043	1,123	7,106	4,532
Boiler tubes	1,397	478	5,259	2,568
Casing and oil line pipe	6,957	1,415	40,358	8,688
Pipe, black and galv., welded steel	4,214	1,457	16,735	8,046
Pipe, black and galv., welded iron	2,380	271	3,729	1,352
Plain and galvanized wire	5,675	4,772	23,849	18,559
Barbed wire and woven wire products	4,268	3,474	18,514	14,170
Wire rope and other products	1,327	609	5,976	3,408
Nails and tacks	2,336	1,102	11,123	4,955
Bolts, nuts, rivets and washers, except track	1,321	621	4,921	2,631
Other finished steel	410	187	1,338	817
Rolled and finished steel	*164,192*	*84,591*	*731,382*	*398,038*
Cast iron pipe and fittings	3,883	1,327	16,201	5,506
Malleable iron screwed fittings	664	339	2,088	1,324
Carwheels and axles	1,504	594	6,677	2,328
Castings, iron and steel	1,228	555	5,928	4,215
Castings, alloy steel, incl. stainless	179	....	740	....
Forgings, plain	671	415	2,548	2,079
Forgings, alloy steel, incl. stainless	114	....	388	....
Castings and forgings	*8,243*	*3,230*	*34,570*	*15,652*
Total	1,043,489	314,950	2,790,426	1,331,714

*Revised total, April figure increased by 11,928 tons by Department of Commerce.

Iron and Steel Imports at Lower Level in May

IMPORTS of semi-finished and finished iron and steel products into the United States during May aggregated 39,877 tons, valued at $2,271,192, in comparison with 56,484 tons, valued at $2,709,526 in the previous month, and with 43,696 tons, with a value of $1,766,599 in the corresponding month of 1936, according to preliminary information released by the Metals and Minerals Division, Bureau of Foreign and Domestic Commerce.

Against the April totals, a lower trade was recorded in practically every item imported — 25 declines against eight increases. The outstanding decline (5108 tons) was in pig iron receipts, followed by those in merchant steel bars (2855 tons) and structural shapes (1954 tons).

In the first five months of the current year imports of semi-finished and finished iron and steel products aggregated 226,058 tons, valued at $10,788,447, in comparison with 212,723 tons, valued at $8,591,792, in the corresponding period of 1936.

An analysis of the export trade for May was published in these columns on July 8, page 104.

United States Imports of Pig Iron by Countries of Origin

(In Gross Tons)

	May		Five Months Ended May	
	1937	1936	1937	1936
United Kingdom	....	100	50	1,182
British India	4,274	4,361	27,874	22,318
Germany	100	666	510	3,361
Netherlands	1,541	5,913	15,065	34,991
Canada	446	2,911	3,469	5,104
France	....	....	....	....
Belgium	....	....	....	529
Norway	....	200	375	1,258
Sweden	....	....	400	164
Russia	....	1,145	4,581	11,607
All others	....	....	....	200
Total	6,361	15,296	52,324	80,714

May Imports of Iron and Manganese Ores

(In Gross Tons)

	Iron Ore		Manganese Concentrates, 35 Per Cent or Over	
	1937	1936	1937	1936
Canada	84	41	....	....
Cuba	39,000	55,500	2,909	2,079
Chile	109,101	....	96	....
Spain	....	....	....	....
Norway	40,775	23,687	....	....
Sweden	....	....	....	....
French Africa	....	6,043	....	....
Russia	....	....	25,907	17,075
India	....	....	4,109	9,611
Brazil	....	....	6,983	....
Gold Coast	....	....	11,834	8,784
Other countries	25,735	113,949	....	53
Total	214,695	199,220	51,838	37,602

Steel Barrels Finished Under Well Controlled Conditions

(CONTINUED FROM PAGE 54)

from the oven. Each end of the oven is provided with an air curtain to prevent cold air from entering.

Synchronizing Parallel Production Lines

The barrel heads are inserted and locked with the closing rings on a long roller conveyor which starts at the discharge end of the oven. They are then transferred to a parallel conveyor running in the opposite direction and through a spray booth and oven. Here the outside coat of paint is applied and baked on. This line is synchronized as to speed with the first line. As the second oven has only one line of barrels, the baking time is somewhat less than that of the first. This oven is very similar to the one described, in both construction and design. It is 120 ft. long and 4 ft. square in cross-section. The length of the oven is designed to provide a 20 min. baking period with the same conveyor speed as the first.

The paint requires a baking temperature of only 250 deg. F. and the heater requires only two gas burners. The last 20 ft. of the oven is a cooling chamber into which cold air is blown from the bottom. A through draft is provided by two stacks on top of the oven, one at each end of the cooling chamber. The same temperature control and safety devices, as already described, are used.

The conveyor extends some 20 ft. beyond the discharge end of the oven and here the finished barrels are mechanically transferred to another conveyor which takes them directly to box cars. The transfer machine is motor driven and the motor is started automatically by the weight of a barrel as it rolls into position at the end of the conveyor. A cam and link device tilts the barrel into an upright position and deposits it on the next conveyor, the motor stopping automatically upon completion of this movement.

There is another production line for the manufacture of tight end barrels which is substantially like the one described for open end barrels. As these are not enameled inside there is only one gas-heated oven and that is almost exactly like the paint oven mentioned.

Mechanical Washer Gas Fired

Raw material for the rings consists of strip steel cut to length. These are rolled into a U-shaped cross-section and then into hoops. Legs are welded onto the ends, the handle is rivetted on and burrs ground off. These assemblies are cleaned for painting in a mechanical gas-heated washer 25 ft. long. This consists of a sheet steel cabinet housing two tanks, a drying chamber and a looped chain conveyor. As the rings pass through, pumps first force the hot cleaning compound onto them and then the rinsing water, by means of stationary sprays.

The tanks are heated with gas-fired, immersion-type heaters Four-inch pipes lie on the bottoms of the tanks with one open end of each welded into the sides of the tanks. The gas burners are on the outside and fire into the open ends of the pipes. These pipes are turned up at the other ends, to form stacks for the exhaustion of the products of combustion. Blast burners are employed, a blower furnishing pressure air which entrains the correct amount of gas for proper combustion. The drying chamber or oven is 10 ft. long and has as a heater a sheet metal box 8 in. high and located on the floor of the oven. Heat, supplied by gas burners, is forced by fan up into the oven through perforations in the top of the heater.

The paint unit consists of a double loop chain conveyor 80 ft. long, operating through a gas-fired oven 40 ft. long, located near the center. In other words, the conveyor extends approximately 20 ft. beyond each end of the oven and is equipped with a series of hooks or tools which extend down into the oven through two longitudinal slots in the top. The rings are dipped in paint and hung on these hooks. The first portion of the conveyor is provided with a dip pan.

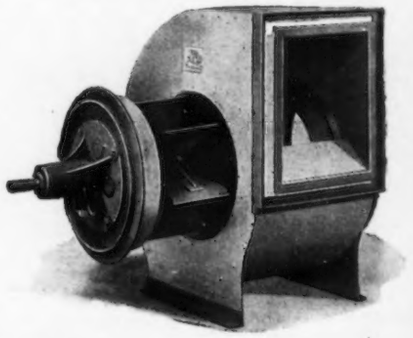
Gas Oven Convection Type

The oven is 3 x 4 ft. in cross-section and is of the forced convection type with the gas heater on top. A single gas burner, of the pre-mix type with the motor blower built integrally with the burner, is employed. The hot air is blown into the oven by means of a duct system and the waste heat is returned to the heater through a parallel system of ducts for reheating and recirculation. Temperature control is mechanical, a thermostat actuating a solenoid valve in the gas line supplying the burner.

The entire plant is heated with gas-fired unit heaters suspended from the ceiling at strategic points. These are also under automatic temperature control. Because the circulation of heated air is positive, it eliminates cold spots and provides an unusually even temperature throughout the heated areas.

Exhausters For High Temperature Service

NEW high temperature exhausters in a range of types and sizes are being placed on the market by the Industrial Gas Engineering Co., 201 East Ohio Street, Chicago. They are available in both a patented double-housing, insulated and air-cooled



design and in a single-housing, non-insulated construction.

All parts subjected to high temperatures are made of heat resisting alloys. Double-row self-alining ball bearings are used, and a patented method of air cooling is incorporated to prevent transmission of heat either to the shaft or the bearings. Convenient access to the exhauster wheels is a feature, the complete assembly of wheel, shaft and bearings being readily removable by unscrewing the cap screws which fasten the assembly to the housing.

All three types of these Thermo exhausters are made in three stock classes for operating temperatures up to 800, 1000 and 1250 deg. F., respectively. Special units can be furnished for higher temperatures up to 1800 deg. F.

Conveying Systems for Severe Duty Service

(CONTINUED FROM PAGE 50)

roller conveyors, through the openings in the pouring weights shown in the foreground. An ingenious method of balancing one set of pouring weights against another is indicated. A lever throws all the weights over one line of conveyor down and lifts the weights on the adjoining line up at the same time. As the weights are lifted on any one line, the gravity rollers permit the molds to roll down and onto the mowing apron conveyor along the left side of the picture. On this the molds are carried to the shake out. The empty flasks return to the molders on a line of gravity roller conveyors indicated in the background, while the sand is re-conditioned and returned by an overhead belt conveyor equipped with deflectors which chute it to the piles shown at the far end of the transverse gravity mold conveyor lines. Continuous flow is achieved in a complete cycle of operations.

In Fig. 10 a still heavier foundry operation is shown. Radiator castings are being poured in molds carried directly on a Logan three-rail roller conveyor (that is, two lines of rollers carried in three parallel rails). In this foundry the use of such conveyors produced a radical improvement in methods. Formerly all molds were poured in the bay in which they were rammed, which meant that while the crane was pouring iron, the molding machines were tied up for lack of crane service. With the conveyor the molds are transferred by gravity to an adjoining bay, where another overhead crane handles the pouring. Thus, continuous production was made possible.

Molds of great bulk and weight in foundries are frequently handled across two or more parallel lines of roller conveyors, rather than on a single line—in order the better to distribute the weight and to balance the load. Frequently many parallel lines of roller conveyors set low to the floor will be installed, with a line of industrial railway track cutting directly across the lines, either in the middle or at one end. On this track a small car equipped with a section of roller conveyor lines up with the ends of the cut conveyors, and is used as a transfer car, taking molds or empty flasks from one line to another, or from any line to a single discharge line running into another operating bay.

No attempt has been made in this discussion to list or describe many of the special pieces of equipment now available in which conveyor sections make up essential parts of the apparatus. The conveyor principle seems to provide an almost unlimited number of applications for weighing, gaging, straightening, flattening and performing literally a host of various operations on materials at the same time that they are kept continuously on the move. As the opportunity offers, many of these special types of equipment will be described and illustrated in further articles of this series.

Hopper Car Construction Simplified By Welding

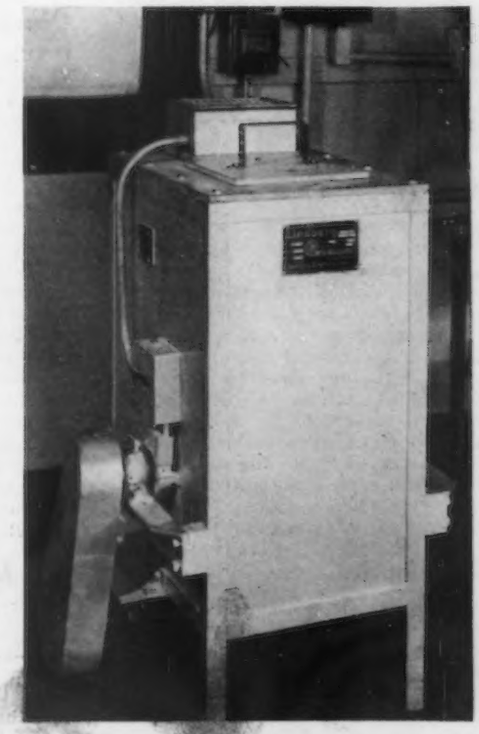
(CONTINUED FROM PAGE 52)

fabricated in jigs. The component parts are assembled together, clamped in the proper position and fused into a single unit. Fig. 2 shows the end of a car placed in position on the frame of a portion of the two sides in the foreground. The next step of construction following that illustrated consists of placing the sides of the car on to the frame and welding them integral with the ends. The manner in which the sides and ends of the car are joined together by welding and the method of welding the car end are shown in Fig. 3. The type of framing used in construction of the car by electric welding can be seen clearly in Fig. 4. This illustration also shows the smooth, projection-free construction. The unbroken surfaces not only make it easier to unload and clean the car but also add to car life by the elimination of places where corrosion would occur.

A Cyclone Furnace for the Laboratory

THIS small, inexpensive laboratory furnace, built on the same principle as the production type Cyclone furnace, has just been developed by the Lindberg Engineering Co. The furnace's work chamber is 8 in. in diameter by 10 in. deep, and is provided with a plug type cover which is easily lifted off for inserting the load. The electric heating elements are mounted in a separate chamber thereby eliminating all direct radiation to the charge. A powerful blower fan circulates the heated air through the work chamber, insuring rapid, uniform heating. Efficient slab insulation keeps heat loss at a minimum throughout the temperature range up to 1250 deg. F.

This laboratory cyclone serves as an accurate and inexpensive pilot furnace for checking up on production, or for predetermining the response to specified heat treatments as well as for tempering small tools and individual steel parts.



THIS WEEK'S MACHINE . . .TOOL ACTIVITIES. . .

. . . Summer slump being felt in many machinery buying centers, with the exception of Pittsburgh.

. . . Strikes and other labor unrest act as deterrents to new commitments.

. . . A heavy machinery maker raises prices 10 to 25 per cent, effective July 15.

Chicago

NO industrial lists of any consequence have been reported, and most of the business being received is in small lots. Deliveries are unimproved generally, and orders and shipments seem to be running at an equal pace. Strikes and strike threats in southern Illinois have deterred some buying, mostly of small tools, but actual demand for these tools still appears good. Nothing definite concerning the proposed Allis-Chalmers extension for tractor motors has yet been learned, but it is understood that officials are not even certain that the building will be erected in Milwaukee because of high state taxes, and that there is some possibility that the project may end up in Illinois or Indiana. A number of industrial concerns in Chicago and vicinity are planning additions which may include some tool business. Recent demand for large tools has been centered chiefly in presses.

Detroit

REPORTS insist that Ford will shortly be inquiring about press shop equipment to stamp body parts. If such a program is started at the Rouge, it will be one of the largest ever undertaken. At present, Ford is asking bids on open-hearth furnaces, and other equipment may be purchased for the Ford steel mills. At the Dearborn office, buying is being done for the Mattford (Alsace) plant. The Detroit machinery market is at its lowest activity point, with most attention being given to meeting delivery dates and installing delivered machines.

Cleveland

WITH the expectation of a revival in business in good volume in September, the machine tool industry does not appear to be depressed by the summer slump that now prevails. Both inquiries and orders are light. The present low volume of business is attributed in part to strikes and the general unrest among workers. Few manufacturers report an improvement in deliveries, and some are unable to hold to their shipping dates because of strikes in their own plants or delays in getting castings and other parts because of labor troubles in plants of their suppliers.

The only new inquiries involving several machines, is one from the Galion Iron Works Mfg. Co., Galion, Ohio, which is in the market for a tool and cutter grinder, vertical boring mill, a drilling machine and two radial drills, and one from the Chesapeake & Ohio Railroad for a few tools.

Cincinnati

EXCEPT for a little further seasonal easing in demand, the district machine tool market is unchanged. Current bookings the past week averaged about 60 per cent of peak capacity, with representation of all types of tools. Light and small tools were greatest in demand, but the steady pull of heavy tool ordering kept the market tone steady and undisturbed. While the trade reports some slack due to labor disturbances in other areas, the general feeling is that the normal vacation lull has begun to materialize. In fact, some users are reported to have closed for short periods, while others have reduced production to permit reasonable recreation for employees.

Production is averaging between 80 and 90 per cent of capacity. Deliveries are becoming easier on most machines and shipment nearer to requirements is possible.

Pittsburgh

INQUIRIES continue strong, and total volume so far this month is considably ahead of the corresponding period last month. Orders are coming in at about the same rate as has been the case the last few weeks, although some improvement is expected soon. Contracts have been let by Carnegie-Illinois covering 50 overhead traveling cranes varying in capacity from 5 to 60 tons for installation at its Irvin Works. Individual type cranes for special purposes at Carnegie-Illinois' Edgar Thomson Works have also been ordered. Four ladle cranes have a capacity of 250 tons while two others to be used for stripping ingot molds have a capacity of 200 tons. Contracts for electrical equipment at the Irvin plant have also been let. Meanwhile, machine tool deliveries have shown no improvement.

New York

DEALERS report a falling off in both orders and inquiries, compared with June business, and what business is being placed is in single tool lots. One factory representative reported, however, that he had received enough orders in the past week to supply another week's backlog at the factory. Machinery men indicate there is business to be had, but that it requires more leg work than in the spring and that the individual plums are smaller, though still substantial in the aggregate. Equipment buying by the Carrier Engineering Corp. is progressing slowly. There is considerable old machinery up in trade, and some rebuilt tools are being acquired. No inquiries have been issued by Bendix subsidiaries, although Vincent Bendix in a recent speech at Hackensack, N. J., indicated that 2500 would be employed at Bendix (Teterboro), N. J., by Nov. 1. Ground has not yet been broken for the buildings. A maker of heavy machinery has announced price changes effective July 15 ranging from 10 to 25 per cent.

A strike called by the AFL Machinists' Union at the plant of the Gould & Eberhardt Co., Newark, N. J., has resulted in closing of the plant since July 6. A closed shop agreement is asked.

Machine Tool Orders Down in June

THE index of machine tool orders, based upon volume of shipments is 1926, declined from 208.5 in May to 191.8 in June, according to the National Machine Tool Builder's Association. This represents a drop of 8 per cent. The three months' moving average is down only 2.8 per cent to 227.6 from the high point reached in May of 234.2. The recession in June occurred in domestic business, since the index of foreign orders increased from 47.1 to 54.2. The index of domestic orders fell from 161.4 in May to 137.6 in June. The combined index for June, 1936, stood at 128.8, and the three months' average at 124.5. The post-depression peak in orders was reached in April, when the monthly index was 282.5.